

# FLIGHT

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ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

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## Flight

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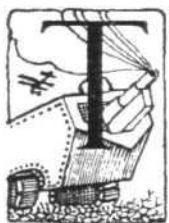
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## EDITORIAL COMMENT.



THE Display given by the Royal Air Force at Hendon each summer marches ever on from strength to strength. We write these words advisedly and after having given thought to the matter. We do not pretend to assume that any human activity (excepting of course the weekly paper known as FLIGHT) is beyond criticism; and we have not so entirely sunk human frailty in the impeccable editorial "we" as not to imagine that any given specimen of that activity, and in particular the R.A.F. Display, would have been improved had we been consulted beforehand and had our advice been taken. Such a procedure, of course, would have relieved us of the ungracious duty of being wise after the event and of offering a modicum of criticism. The reflection occurs, however, that in such a case Othello's occupation would be gone. For what purpose does a paper publish editorials if not to criticize? So perhaps after all, things are for the best in this best of all possible worlds.

We do, in fact, intend to offer some criticisms and some suggestions with regard to the Display. We

intend, moreover, to be as hypercritical as possible. It would be an insult to the Royal Air Force to take up any other attitude. The standard which they have set is so very high, that a mere stringing together of laudatory adjectives in the superlative degree "perfect splendid, marvellous" and the like would be merely fatuous. Such a tone of criticism is appropriate to a local paper describing the local amateur theatricals. It is because the display has reached such a very high standard of excellence that it has earned the right to hypercriticism.

Having thus wielded our thunderbolt before the eyes of astonished man, we must confess that we have found but few targets on which to direct our bomb-sights. First as to organization and administration. In all seriousness we should like to urge that in future years the Display should not be confined to one day. Enormous as were the crowds at Hendon last Saturday, we feel perfectly convinced that everyone in London, or rather in southern England, who wanted to see the Display was not able to do so. For instance Saturday was also the final day at Henley and Wimbledon, while there were the ordinary Saturday attractions everywhere.

The Royal Tournament always lasts for about a fortnight, with two performances a day, and yet Olympia is always well filled. The Aldershot Tattoo is held for four nights in a most inaccessible spot, but it is always hard to procure 4s. seats if one waits till one gets to the arena. Other events of the summer season—Epsom, Ascot, Henley, Wimbledon, Cowes, Test matches, etc.—are none of them confined to a single day, yet all draw well day after day. The period of the Tattoo at Wembley last year had to be extended several times. The R.A.F. Display is not less popular than any of them, and we feel no doubt whatever that Hendon would fill up well at least on a second day. The trouble and expense of preparing for one day's performance is very great. The additional cost of a second day would be trifling, especially now that Hendon is a Government aerodrome. We strongly urge upon the Air Ministry that next year it should try the experiment of holding the Display on two days.

Now that parachutes have become part of the

standard equipment of the Force, we should suggest that some drops should usually be part of the programme. They are always a very popular sight. So, in the years just after the war, was the shooting down in flames of a captive balloon. There were then plenty of "disposals" kite balloons, and nowadays such destruction might be objected to as extravagant. But if it could be arranged without undue expense, it would be an additional attraction.

In our last issue a correspondent remarked that the coastal area was playing no part in the present Display, except for three experimental types in the parade. This certainly is not as it ought to be. Machines of the coastal area, of course, can only appear at Hendon as fish out of water, and when one year a Seagull discovered a commerce raider shelling a British ship, probably very few of the spectators realised that the aircraft overhead was an amphibian seaplane. The correct solution would be for the coastal area to hold its own Display in the Solent just before or just after Cowes Week.

Now for the details of execution last Saturday. Probably the distinguished foreign visitors who were present, crowned heads and aerial missions, when they saw the manœuvres in the air felt that for accuracy of execution they could not be surpassed. That impression was very nearly correct, but not quite. These manœuvres have been surpassed. They were surpassed, just by a little, at the Display of 1925. This criticism applies to the fighter squadrons rather than to the bombers. Last year No. 25 Fighter Squadron set a standard of such perfect accuracy and precision in air drill, that no one, not No. 25 itself, could quite equal it this year. There were various ways in which the manœuvres by radio telephony showed an advance this year. The manœuvres themselves were better conceived. They were more practical and they were more attractive to watch. Moreover, the loud speakers worked very well indeed this year. It was just in the formation of the flights that some falling short of the sheer perfection of last year was noticeable.

As for the group of six fighter squadrons, the impression was given that more time ought to have been spent on the drill, both by the individual squadrons as well as by the complete wings, before flying past the King. We are given to understand that these combined manœuvres are not mere ceremonial drill in the Army sense of the word, but are practical training for battle. In that case, more time spent on them would not be wasted. Among the fighters nothing struck us as better than the formation flying of the flights of No. 43 Squadron from Henlow, as they dived to machine gun the aerodrome. Among the bombers, the twin-engined night-bombers who set out on the reliability trial showed no remarkable accuracy of formation as they left Hendon. No. 7 from Bircham Newton seemed the best, but it got away with only seven machines instead of eight. The four day-bombing squadrons who took part in group evolutions left nothing to be desired in their formation work, and No. 12 from Andover kept up the standard in the attack on the aerodrome. Nos. 11, 12, 39, and 207 bombing squadrons were as good as anything in the Display.

Air racing is perhaps a necessary item of the Display. If the races are regarded seriously as tests of piloting, it might be as well to hold them on some other occasion. If, however, they are meant to

be an attractive spectacle, the authorities might consider some ways of arousing popular interest in them. For one thing, the competing machines should not merely be numbered. Each should be painted a bright distinguishing colour. We suggest that each Reserve training school should adopt permanent colours. In the second place, it would be well, unless it is thought too dangerous, to have all races in light aeroplanes and to fly them round pylons as used to be done in the old days of Hendon.

The parade of new and experimental types is always the most educative event on the programme, as well as being very popular. In several ways the Air Ministry and the Committee of the Display deserve congratulations for this year's parade. Never before has such an interesting collection of types been shown to the public. Of course, the stars were the Autogyro and the Pterodactyl. They are not only of great aeronautical interest, but their performance was bound to delight anyone who saw it. Each, too, obviously told its own story, namely, that it could not be stalled. Each was calculated to awaken a desire for the air in the breasts of people who have no desire to hurtle along at great speed or to climb *ad astra*. They evoked visions of the future, when every young blood will own his Archangel aeroplane with Belphegor engine, while granny will drop into tea in her sober Pterodactyl. The more reckless types were well arranged in classes, training ship 'planes, fighters army co-operation, day bombers, etc. One remembers that last year the "Gamecock" appeared in this parade, yet this year two complete squadrons of "Gamecocks" took part in the Display. That speaks well for Air Ministry hustle. What is more, two day bombers which appeared this year, the "Fox" and the "Horsley," have already been adopted for Service use and put on production. That, also, proves a lack of somnolence in Adastral House. We shall wait with interest to hear whether production orders are given for any or all of the "Gorcock" "Hornbill," "Avenger," and "Firefly"; also whether the "Atlas," "Boarhound," "Hyena," or "Vespa" will at long last succeed in displacing the dear old Bristol Fighter for Army co-operation work. Has Capt. Barnwell, for example, at last solved the problem which he set the world so many years ago?

We shall here venture on another suggestion, though with no great expectations that it will be adopted. It is that new and experimental types of aircraft should be flown at the Display, not by Service pilots, but by the test pilots of the constructing firms. It implies no slur on the Service pilots, but, nastrally, in many case they have not had time to become fully accustomed to new types. As a matter of fact, our suggestion was actually carried out in the case of the Autogyro. Flying Officer F. T. Courtney is certainly on the Reserve of Air Force Officers, but to all the world Capt. F. T. Courtney is a civilian pilot of peculiarly high qualifications. The same can be said of all the test pilots of constructing firms, and in the case of machines which have only recently been completed it would seem a self-denying act of no little prudence to let the men who know them best fly them at the Display.

Now, having criticised everything which we could find to criticise—and, when all is said and done, it does not amount to much—we will end where we began by putting on record our opinion that the Display of 1926 achieved the difficult feat of improving upon all of its excellent predecessors.





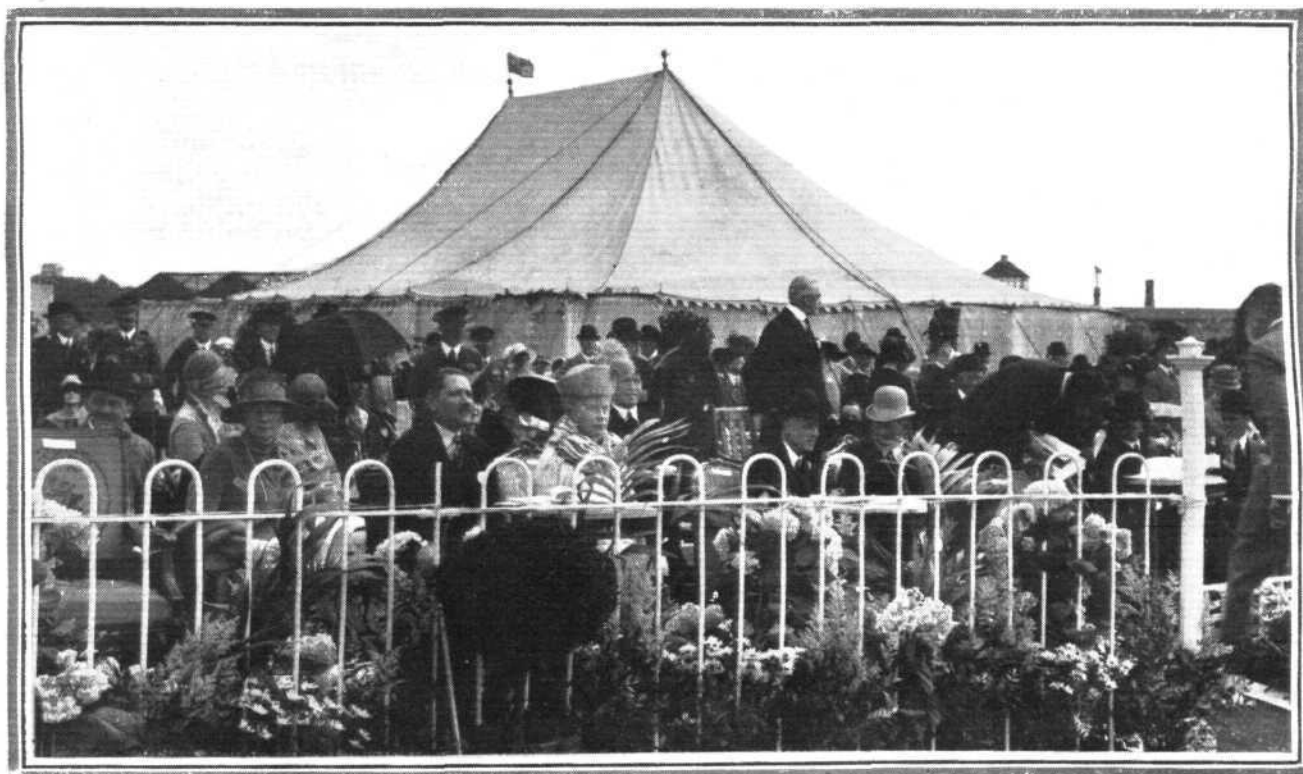
At the outset we wish to correct an unfortunate error that crept into our article on the R.A.F. Displays in last week's issue of *FLIGHT*. Our contributor, Maj. F. A. de V. Robertson, stated that it would "probably be advisable to take *umbrellas*." This, of course, should have read "*sunshades*."

Owing to the complete re-arrangement of all the enclosures at Hendon Aerodrome, it was almost impossible to form an opinion as to the number of spectators attending the Seventh R.A.F. Display on Saturday. Nevertheless, we feel convinced that the number beat all previous records, for, in spite of the fact that the various enclosures were this time spread practically half-way round the aerodrome, each enclosure, as far as we could see, was thoroughly filled, whilst the number of motor-cars neatly parked in their various allotted points, was certainly the largest we have so far seen. We would like to say here that the organisation and arrangements for the comfort of the spectators were excellent this time, and were, we think, much improved—although these left little to be desired even on previous occasions. Transport arrangements were, considering the magnitude of the traffic involved, better than ever, and the 150,000 or so spectators got away with comparative comfort—slowly, perhaps, but surely.

There is no doubt whatever, now, that the R.A.F. Display has taken its place amongst the foremost of the functions of the London social season. Those that attended the Display did so with a determined intention of gaining the fullest degree of amusement possible out of it. Furthermore, the majority of them followed the full programme—from noon until nearly 7 p.m.—with really keen interest.

The main enclosure displayed a brilliancy and smartness equal to any of the old-established functions, such as Ascot, Henley, etc., and many distinguished personages were amongst those present. Royalty was represented by Their Majesties the King and Queen, the King and Queen of Spain, the ex-King and Queen of Greece, the Duke of York, Prince and Princess Arthur of Connaught, Prince Chichibu of Japan, and the Infante Alfonso and the Infanta Beatrice of Spain. The heads of the Air Ministry, who received the King and Queen, and those in the Royal enclosure included Sir Samuel Hoare (Secretary of State for Air) and Lady Maud Hoare, Sir Philip Sassoon, Air Chief Marshal Sir Hugh Trenchard and Lady Trenchard, Air Marshal Sir John Salmond, Air Vice-Marshal Sir Geoffrey Salmond, Air Vice-Marshal Sir Philip Game, etc.

Several Indian Princes were also present, as well as numerous



[*"FLIGHT"* Photograph

**THE ROYAL ENCLOSURE AT THE R.A.F. DISPLAY :** The Royal party included, besides the King and Queen, King Alfonso and the Queen of Spain, Prince and Princess Arthur of Connaught, the Duke of York, and Sir Samuel Hoare.

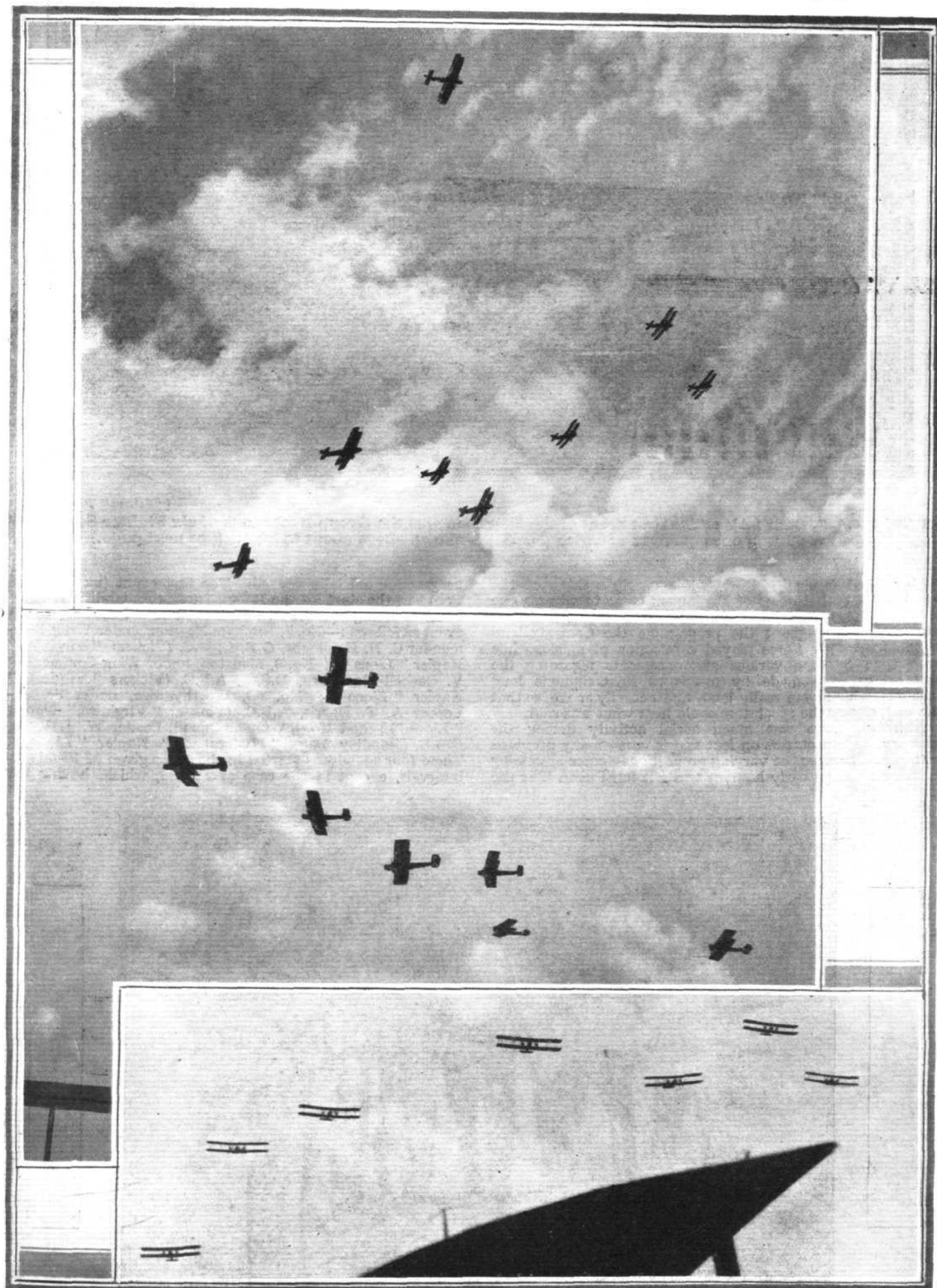


ROYALTY INSPECTS THE MACHINE PARK AT THE R.A.F. DISPLAY : The centre of interest is the Autogyro. In this group will be seen the King and Queen, King Alfonso and the Queen of Spain, the Duke of York, Sir Geoffrey Salmond, Sir Hugh Trenchard and Sen. Cierva. ["FLIGHT" Photograph]



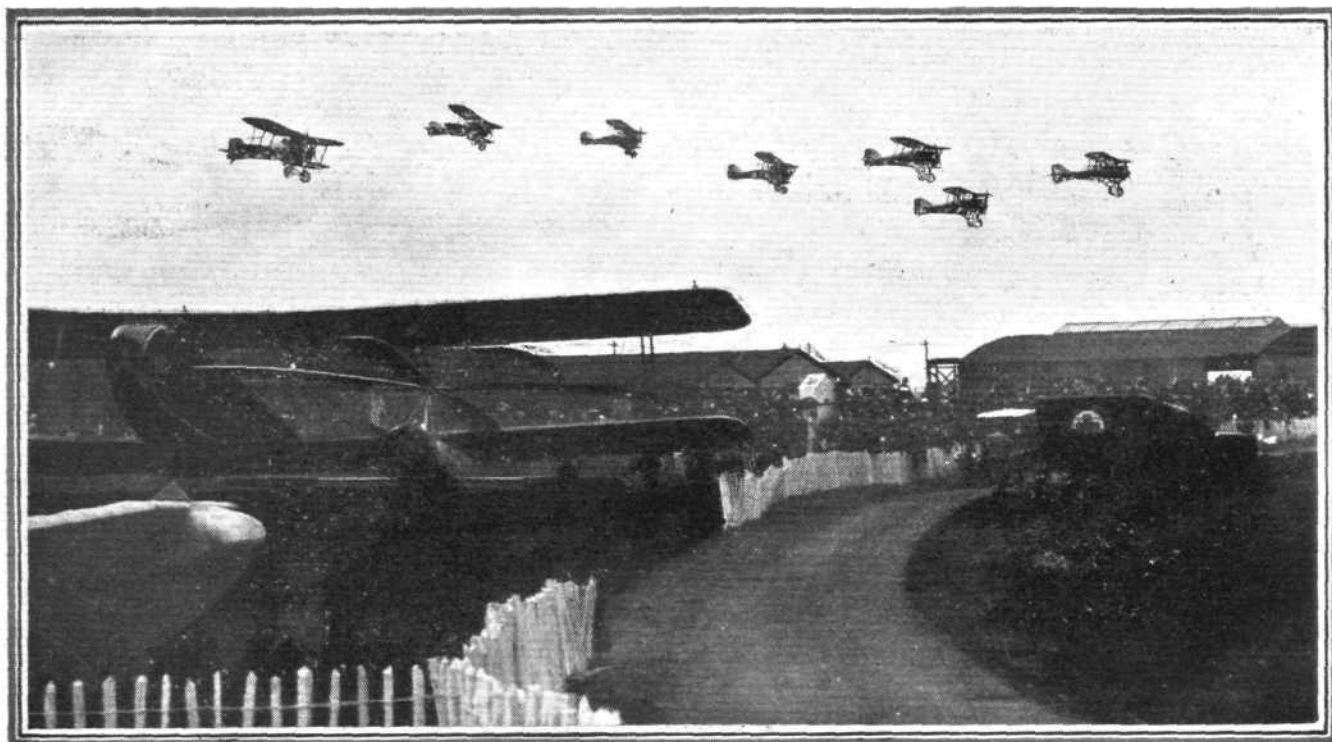
THE R.A.F. DISPLAY AT HENDON : The Seventh Display beat all previous records as regards the number of spectators (and their motor cars) present, as may be seen above. ["FLIGHT" Photographs]





[“ FLIGHT ” Photograph]

AT THE R.A.F. DISPLAY : Proceedings opened at Hendon on Saturday with a long distance (500 miles) race for Night-Bombing Squadrons, three of which are shown above leaving the aerodrome. Top, No. 99 Bircham Newton (Handley Page “ Hyderabad ”) Centre :—No. 9 Manston and bottom No. 7 Bircham Newton (Vickers “ Virginias ”)



[“ FLIGHT ” Photograph.]

**AT THE R.A.F. DISPLAY :** The first event of the afternoon was the Group Evolutions of six Fighter Squadrons (54 machines), one squadron of which (No. 32) is shown above about to land. (See next page.)

distinguished foreign visitors, while nearly a third of the members of both Houses of Parliament came to witness one of the most wonderful displays, aerial or otherwise, ever presented. Throughout the programme the Central Band of the Royal Air Force played a selection of music, while from time to time various announcements regarding the proceedings were made by means of Marconiphone loud speakers, which were really loud, and actually spoke, so that the majority of the spectators could hear what was said.

Although there was much aerial activity during the morning, and spectators on foot and in cars—many provided with picnic hampers of varying proportions—came streaming in from quite an early hour, it was not until noon that the

programme officially opened. The first event (morning section) was the start for the Long Distance Reliability Trial for night bombing squadrons. Four squadrons took part in this event as follows :—No. 7, Bircham Newton, under Wing-Commander C. H. B. Blount, O.B.E., M.C. (Vickers “ Virginias,” Napier “ Lions ”); No. 9, Manston, under Wing-Commander V. Gaskell-Blackburn, D.S.C., A.F.C. (Vickers “ Virginias,” Napier “ Lions ”); No. 58, Worthydown, under Squad-Leader A. T. Harris, A.F.C. (Vickers “ Virginias,” Napier “ Lions ”); and No. 99, under Squad-Leader W. J. Ryan, C.B.E. (Handley Page “ Hyderabad,” Napier “ Lions ”). These four squadrons started in the order given at 10-minute intervals, except in the case of No. 99, which, having the

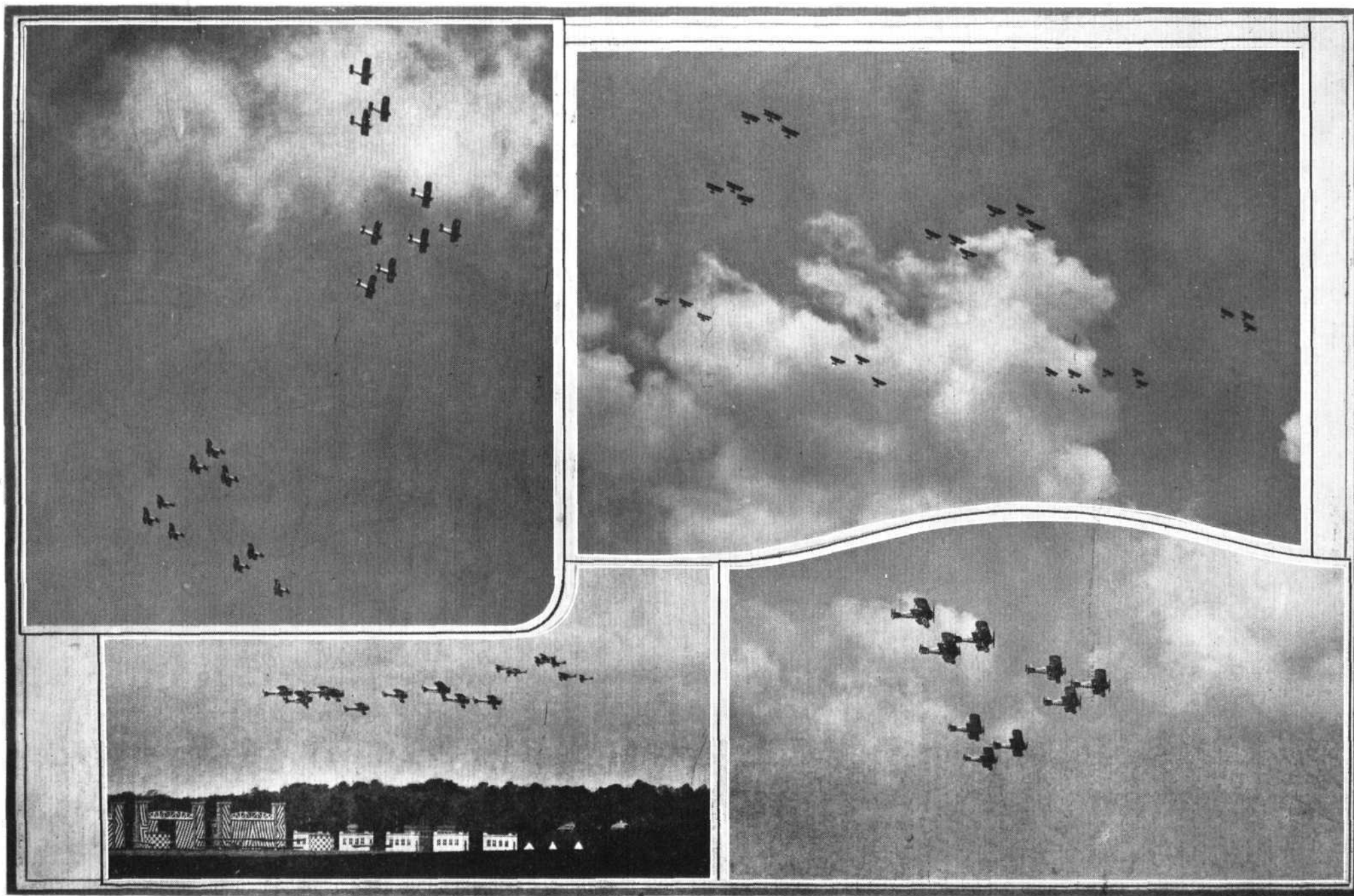


[“ FLIGHT ” Photograph]

**A MERRY GROUP OF PILOTS AT THE R.A.F. DISPLAY :** Whilst waiting to emplane on their “ Virginias ” for the Long Distance Bombing Race, the above pilots of No. 58 (Worthydown) posed for “ Flight ” Photographer.

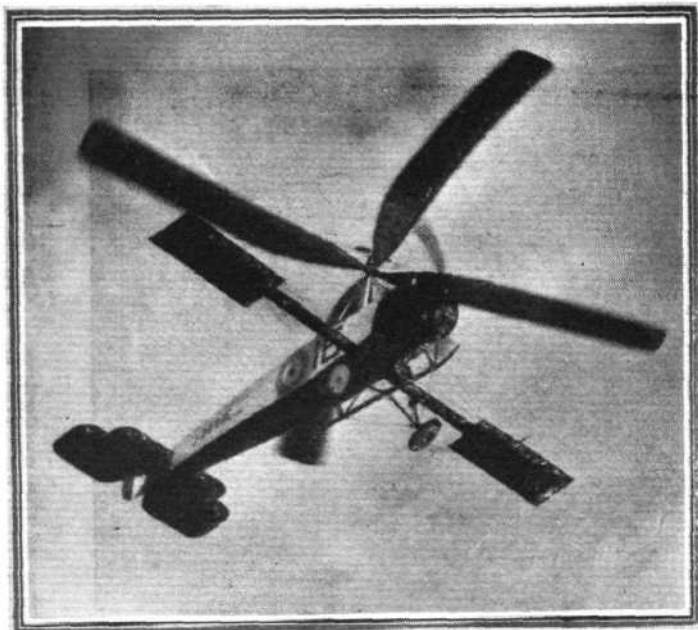
JULY 8, 1926

**FLIGHT**  
FOOTBALL  
ALPHABET



AT THE R.A.F. DISPLAY : Event No. 1 (afternoon) Group Evolutions by Six Fighter Squadrons (54 machines). Some of the evolutions. On the right (top) will be seen one Wing of three squadrons (Nos. 19, 29, and 41) in "Mass line ahead." Our camera was not large enough to get in all 54 machines.

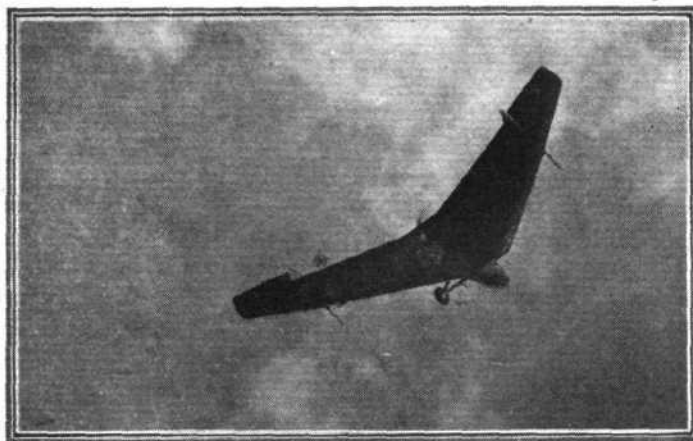




[“ FLIGHT ” Photograph]

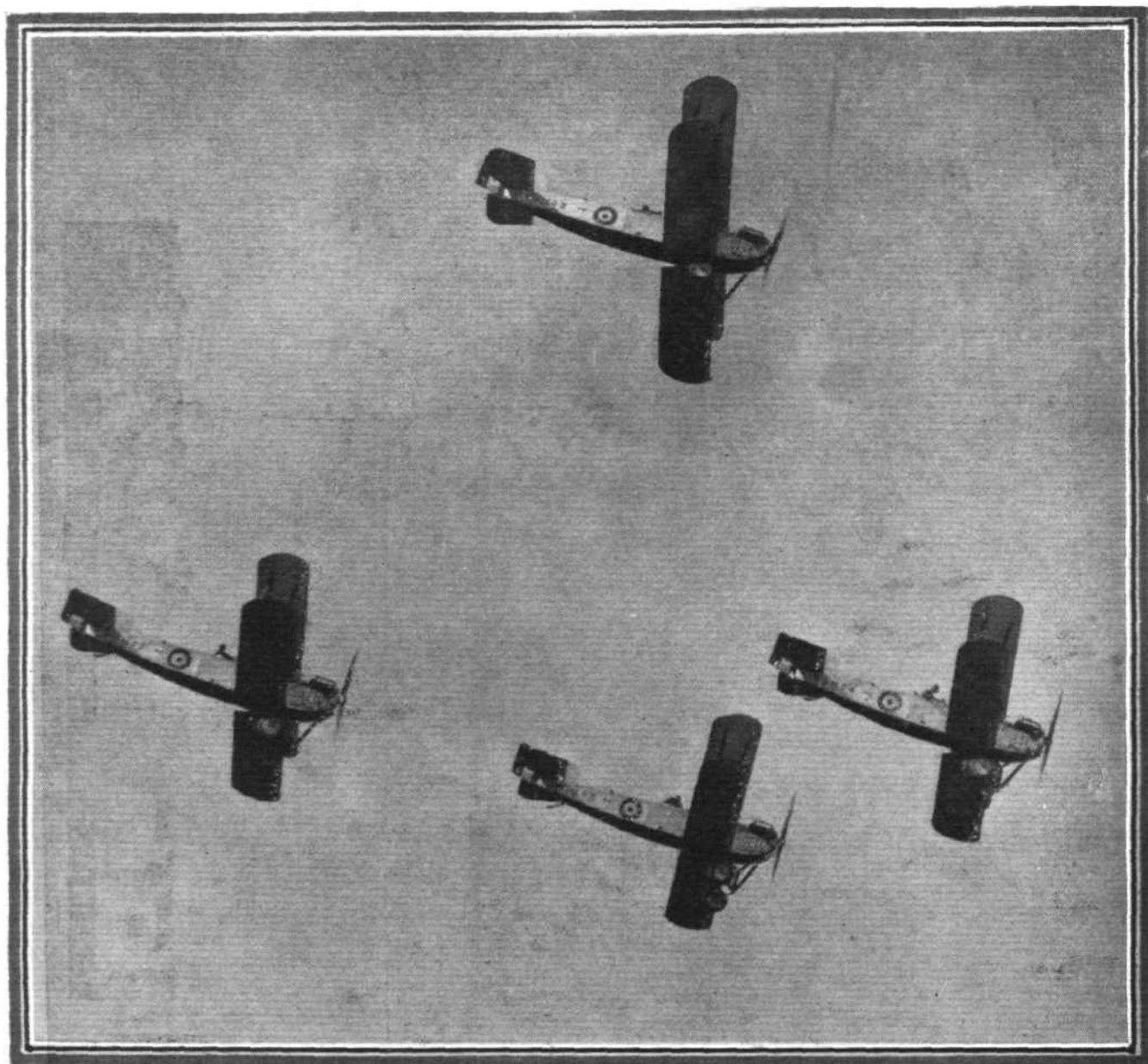
**A “ STAR TURN ” AT THE R.A.F. DISPLAY :** The extraordinary Cierva “ Autogyro ” making one of its remarkable vertical descents.]

fastest machines, started after an interval of 30 minutes. The course was via Calshot, Hawkinge, Manston, Farnborough, Northolt, Henlow, Netheravon, Farnborough, Hendon—a distance of over 500 miles, which was timed to be covered in 6½ hours, so as to finish at Hendon at the conclusion of the programme.



[“ FLIGHT ” Photograph]

**AS HARD TO BELIEVE AS ITS NAMESAKE :** The Hill “ Pterodactyl ” trying its hardest, but without success, to stall.



[“ FLIGHT ” Photographs]

**AT THE R.A.F. DISPLAY :** During the afternoon the four Fairey III D biplanes, piloted by Wing-Com. Pulford and his companions, recently back from their Cairo-Cape-Cairo flight flew over the aerodrome and saluted the Royal Enclosure.



Marks were given in this trial for (a) Reliability of aircraft. (b) Picking-up formation quickly. (c) Number of aircraft completing the course in formation. (d) Prompt and efficient wireless communication with the ground control station. (e) Fastest time over the course. No. 7 was unfortunate in having to start with one of its number short, owing to carburettor trouble; otherwise all got away in good style. This was really an interesting event, although mainly taking place away from the aerodrome. Nevertheless, it was by no means a case of out of sight out of minds, for from time to time—about every hour or so—reports on the progress of the race were made on the loud speakers, from which one gathered that No. 99 was gradually overhauling the other squadrons. But more of this event anon.

As soon as the bombing squadrons had departed, the second item on the morning programme commenced—the message picking-up competition. This event was rendered much more interesting this year compared with last year's similar competition by the introduction of wireless into the proceedings. As before, it was open to one Bristol Fighter from the various Army Co-operation Squadrons. Eliminating contests held previously left three competitors for Saturday's contest, as follows:—(1) No. 4 Army Co-operation Squadron, Farnborough, Squadron-Leader J. C. Slessor, M.C. (2) No. 13 Army Co-operation Squadron, Andover, Squadron-Leader C. C. Durston. (3) No. 16 Army Co-operation Squadron, Old Sarum, Squadron-Leader W. A. Coryton, M.V.O., D.F.C.

Each competitor, after taking off, received instructions by wireless and picked up his message (suspended on a cord between two posts) by means of a hook suspended beneath the machine. He then read out the answer by wireless, after which the ground station instructed him to drop a copy of the message on a certain marked spot, and then to land on another marked spot. All the wireless messages, both to and from the machine, were broadcast by the loud speakers, and were clearly audible. No. 13 carried out the operations in fine style and obtained first place, No. 4 being placed second, and No. 16 third, the latter only succeeding in hooking his message after two attempts.

This concluded the morning section of the programme, and during the lunch interval, between 1 and 2.30 p.m., some splendid demonstrations of aerobatics were carried out on different types of fast single-seater fighters, viz., a Gloster "Gamecock" (Bristol "Jupiter"), a Gloster "Gamecock" (Napier "Lion"); a Sopwith "Snipe" (B.R.11); an Armstrong Whitworth "Siskin" (Siddeley "Jaguar"); and a Hawker "Hornbill" (Rolls-Royce "Condor"). Each put up a wonderful display, and it would be impossible to pick out any individual one for particular mention, except, perhaps, that F.-O. H. R. D. Waghorn's long upside-down flights on the "Snipe" caused much excitement, and F.-O. Saint's demonstration on the "Hornbill" was of considerable technical interest—for this latter machine's speed, climb and

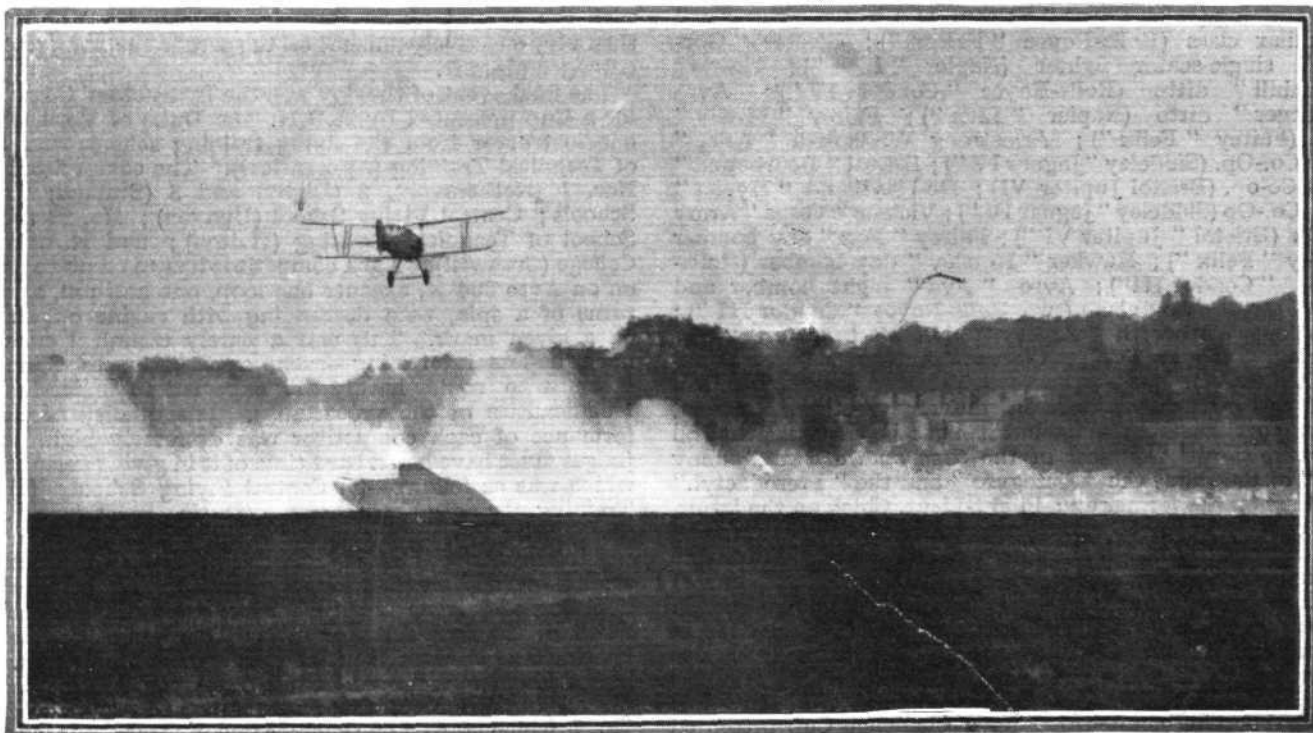
manœuvrability were indeed something to marvel at, as well as its "slow-flying" powers.

About the same time Capt. F. T. Courtney took up the Cierva "Autogyro" for a short demonstration. To see this weird "contraption" flying in company with orthodox—one almost said "respectable"—machines was certainly an experience one will not forget for a long while. Although it was, perhaps, a little slower than the standard Avro, this Avro with nothing to sustain it other than the revolving "windmill" was able to fly horizontally, and make banked turns equally well. But to see it hover, rise and descend almost vertically, and then land in a space, apparently only a few yards square, made one and all gasp in wonderment.

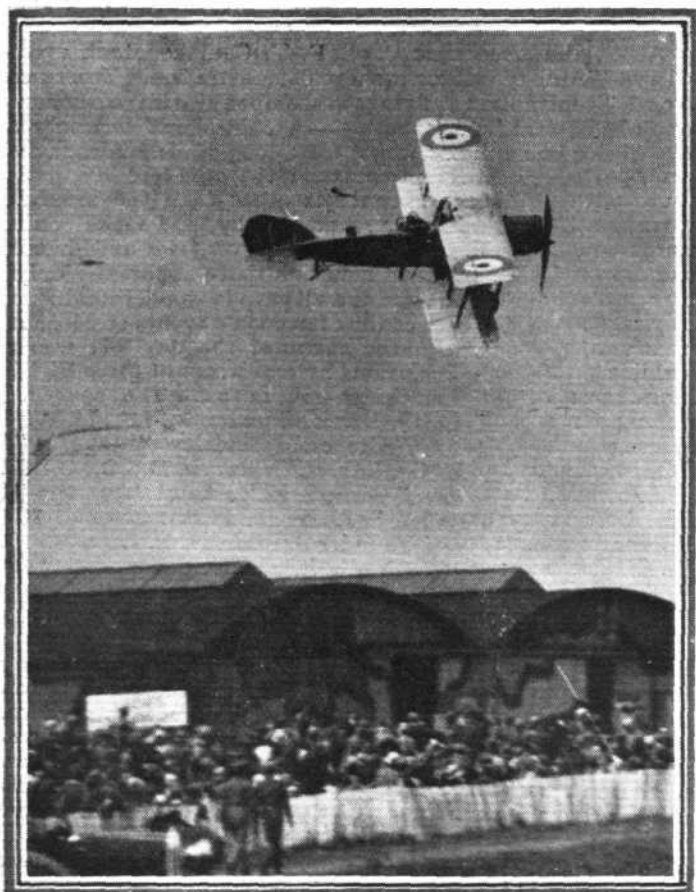
At 2.30 p.m. the first of the afternoon's events started, and this was, perhaps, also the event of the day. It was an exhibition of Group evolutions by two wings of three Fighter Squadrons of nine machines—54 in all. The squadrons taking part were: No. 19, Duxford, under Sq.-Ldr. H. W. G. Jones, M.C. (Gloster "Grebes," Siddeley "Jaguars"); No. 23, Henlow, under Sq.-Ldr. R. Collishaw, D.S.O., O.B.E., D.S.C., D.F.C. (Gloster "Gamecocks," Bristol "Jupiters"); No. 29, Duxford, under Sq.-Ldr. R. H. G. Neville, M.C. (Grebes); No. 32, Kenley, under Sq.-Ldr. H. P. Lale, D.S.O., D.F.C. (Grebes); No. 41, Northolt, under Sq.-Ldr. F. Sowrey, D.S.O., M.C., A.F.C. (Armstrong Whitworth "Siskins," Siddeley "Jaguars"); and No. 56, Biggin Hill, under Sq.-Ldr. F. J. Vincint, D.F.C. (Grebes).

These squadrons took off in formation one after the other in rapid succession, and as soon as all 54 machines were in the air the six squadrons flew across the aerodrome in squadron mass formation, and on passing the Royal Enclosure—Their Majesties having meanwhile arrived—dipped in salute. They then went through a series of beautiful evolutions, with—considering the high speed of the machines and the bumpy state of the air—extraordinary regularity. They flew in very close formation, in fact, at times it seemed as if a collision must be inevitable. It was, without doubt, one of the most wonderful displays of skilful piloting that has yet been presented at any of the Displays.

The next event was a handicap race of about 20 miles, open to Directorates of the Air Ministry, on various types of aircraft. There were six starters as follows—Equipment-Air-Com. A. M. Longmore, C.B., D.S.O., on a Fairey "Flycatcher" (Siddeley "Jaguar"), 53 secs.; Organisation and Staff Duties, Sq.-Ldr. C. R. Cox, A.F.C.; Training, Wing-Com. W. S. Douglas, M.C., D.F.C., and Personal Services, Sq.-Ldr. A. N. Bengel—all three on Hawker "Woodcocks" (Bristol "Jupiters") and each with 47 secs.; Operations and Intelligence, Flight-Lieut. E. F. Waring, D.F.C., on an Armstrong Whitworth "Siskin" (Siddeley "Jaguar"), 32 secs.; and Technical Development, Sq.-Ldr. Sir C. J. Q. Brand, K.B.E., D.S.O., M.C., D.F.C., on a Gloster "Gamecock" (Bristol "Jupiter"), scratch.



AT THE R.A.F. DISPLAY: The Low-Bombing Competition. One of the Gloster "Grebes" of No. 19 Squadron makes a direct hit on the moving tank.



**"ARMY CO-OP.":** One of the Bristol Fighters (School of Army Co-operation) which took part in the Message-picking-up competition.

It was certainly an interesting race, but unfortunately, it was not easy to follow, especially as at the same time the race was in progress the "new and experimental" machines set forth on their taxi-past the enclosures. However, the result of the race was—(1) Organisation and Staff Duties; (2) Operations and Intelligence; (3) Equipment.

The parade and fly-past of new and experimental machines was certainly the most interesting of any given at the R.A.F. Displays. No fewer than sixteen different types were demonstrated, and it was a convincing demonstration of the progress that has taken place in aircraft design. The machines taking part were as follows:—Hill "Pterodactyl" (Bristol "Cherub"); Blackburn "Sprat" deck-landing and sea-plane training (Rolls-Royce "Falcon"); Vickers "Vendace" of similar class (Rolls-Royce "Falcon"); Gloster "Gorcock," single-seater fighter (Napier "Lion"); Hawker "Hornbill" ditto (Rolls-Royce "Condor IV"); Avro "Avenger" ditto (Napier "Lion"); Fairey "Firefly" ditto (Fairey "Felix"); Armstrong Whitworth "Atlas" Army Co.-Op. (Siddley "Jaguar IV"); Bristol "Boarhound" Army Co.-Op. (Bristol Jupiter VI); De Havilland "Hyena" Army Co.-Op. (Siddley "Jaguar IV"); Vickers "Vespa" Army Co.-Op. (Bristol "Jupiter VI"); Fairey "Fox" day bomber (Fairey "Felix"); Hawker "Horsley" day bomber (Rolls-Royce "Condor III"); Avro "Ava" night bomber and coastal torpedo landplane (two Rolls-Royce "Condor III"); Armstrong-Whitworth "Argosy" civil air transport (three Siddley "Jaguar IV"); Cierva "Autogyro" (Avro) research (Clerget).

All these machines were in the air together, zooming, banking and neck-cracking—but it must be admitted that all eyes were turned for most of the time on the two "funny men" of the show, the "Autogyro" and the "Pterodactyl." Courtney on the former and Flight-Lieut. Chick on the latter, both gave fascinating demonstrations of the really remarkable qualities of these two aero-er-machines. Courtney's "stand clear of the gates, please" evolutions were almost unbelievable.

After these sixteen machines had landed (descended, in the case of the Auto-gee and the how-do-you-spell-it), one or two, we understand, having experienced forced landings outside the aerodrome, the fourth event started. This was the low-bombing competition for a Challenge Cup presented by Capt. the Hon. F. E. Guest, C.B.E., D.S.O. Although, perhaps, not quite so thrilling as the similar event last year, it was, in, a way more interesting in that No. 19 Fighter Sqdn.

("Grebes") under Sqdn.-Leader H. W. G. Jones, M.C., had to carry out its attack on a moving "tank." The same "all-direction" swooping tactics were employed as last year, but with rather less frequency. Most of the bombs fell well within the "damage zone" while several direct hits were scored.

The next item on the programme was the demonstration of air manoeuvres by wireless—which was a popular feature last year. This year the event took a rather different form and carried with it a sort of story:—The pilots of No. 25 Fighter Sqdn. ("Grebes") were assembled on the aerodrome in front of their machines; the "Alarm" was given by a long blast on a Klaxon, upon which they rushed to their machines started up, and took off in formation, under Sqdn.-Leader A. H. Peck, D.S.O., M.C. After a short interval the Ground Station (call sign "Fantail") issued orders to the squadron ("Mosquito") leader, who acknowledged their reception. All this, by the way, was distinctly audible on the aforementioned loud speakers.

The Squadron then went through a variety of evolutions "on the word of command" by radio. Back and forth they flew across the aerodrome, a different formation each time, and generally "right about turning" by means of simultaneous loops or rolls.

After this inspiring display there was a race for R.A.F. Reserve of Officers. This was on Bristol Fighters, over a course of 10 miles, and produced five competitors from the following training centres—Bristol Aeroplane Co., Bristol, F.O. S. Jones, A.F.C.; Armstrong-Whitworth Aircraft, Coventry, F.O. R. C. Berlyn; William Beardmore, Glasgow; F.O. S. C. O'Grady, M.C.; North Sea and General Transport, Leeds, F.O. S. B. Atkinson; and De Havilland Aircraft, London, Flt.-Lieut. W. W. Wakefield. As in the previous race, it was rather difficult to follow, but the result was: 1. London; 2. Coventry; 3. Glasgow.

The next event was an exhibition of evolutions by a group of two wings of two Bombing Squadrons of nine machines each, made up as follows:—No. 11, Netheravon, Sq.-Ldr. E. A. B. Rice, M.C., and No. 12, Andover, Sq.-Ldr. T. E. Salt, A.F.C. (both Fairey "Fawns," Napier "Lions"); No. 39, Spittlegate, Sq. Ldr. H. V. C. de Crespigny, M.C., D.F.C., and No. 207, Eastchurch, Sq.-Ldr. J. B. Graham, M.C., A.F.C. (both D.H.9A "Liberties"). As regards this event, which was a feature in last year's Display, it only remains for us to say that the evolutions were carried out with truly marvellous regularity and uniformity, if anything, rather better than last year.

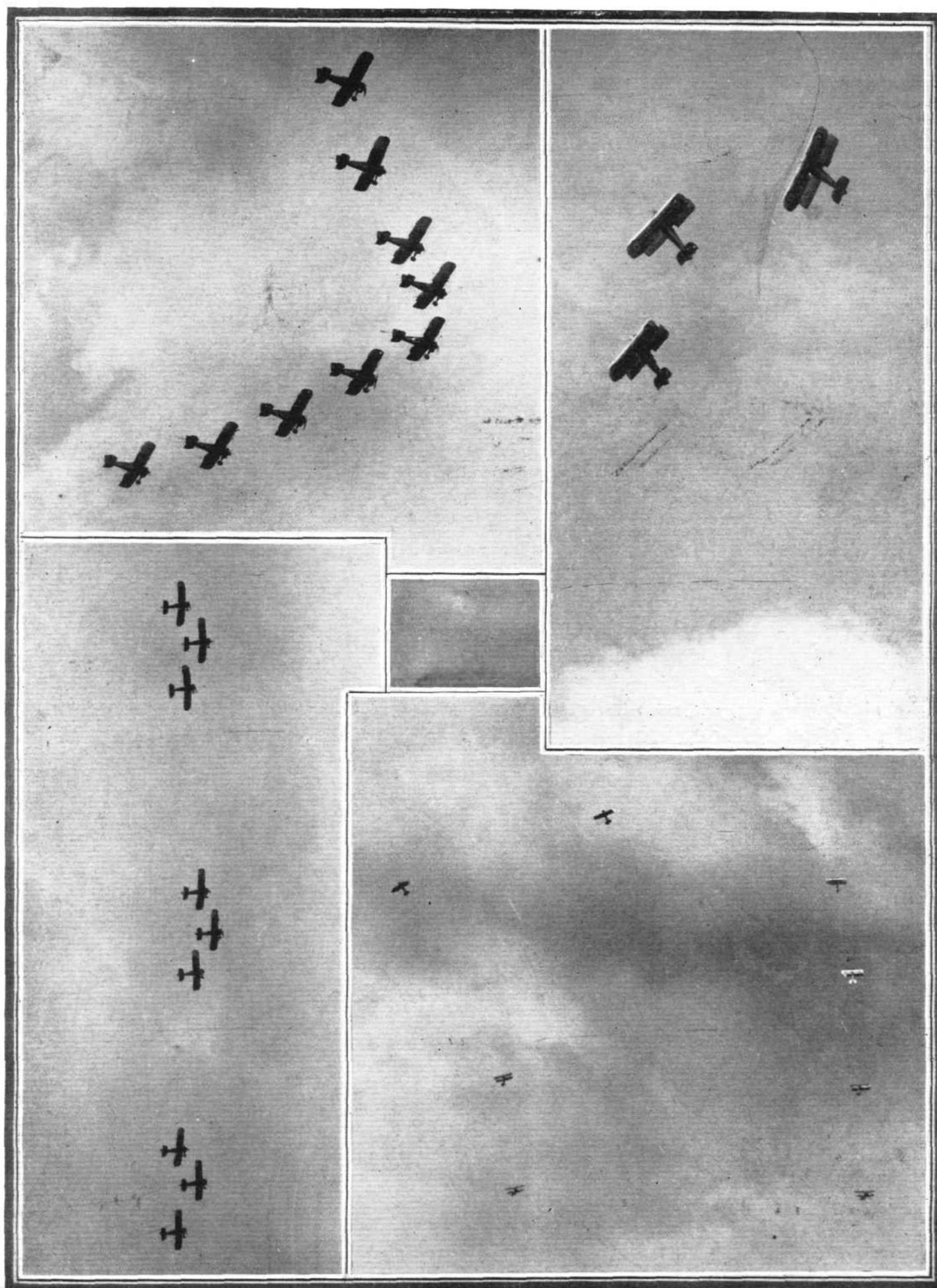
After this came the Set Piece—during which the Royal Party made a tour of inspection of the machine park. The "Story" this year was the combined attack on a hostile aerodrome by fighters and day bombers. It commenced with a low bombing attack with light bombs by the fighters, which followed up with a machine-gun attack to silence the ground defences. Next came along, higher up, the day bombers, with the fighters above them in attendance. The bombers then very effectively finished off the aerodrome and previously damaged aircraft.

The final event of the day was the Instructors' Competition for a Cup presented by H.R.H. The Duke of York, open to one instructor from the flying training schools and School of Technical Training (Apprentices). The competitors were: Nos. 1 (Netheravon), 2 (Digby) and 3 (Sealand) Training Schools; Central Flying School (Upavon); No. 24 (Kenly); School of Technical Training (Halton); and R.A.F. Cadet College (Cranwell). Each competitor had to climb to 1,500 ft. on an Avro 504 K, execute one loop, one half-roll, and three turns of a spin, then descending with engine off and land on a given mark. This was a purely technical event, but none-the-less interesting—even, apparently, to those spectators who could hardly be expected to understand the technicalities of the proceedings. The quality of the performance of each competitor was extremely high, and the judges must have had a hard time of it in giving their decision, which was as follows—(1) Central Flying School; (2) No. 1 Training School, Netheravon. (3) No. 2 Training School, Digby.

Just as the remaining spectators—still many thousands strong—started on their journey home, the first of the night bombing squadrons made its appearance, returning for the finish of the long-distance race. This squadron proved to be No. 99 (Bircham Newton (H.P. "Hyderabad"), which had made steady progress throughout the 500 miles. Then, at varying intervals the other squadrons returned home. No. 7, which started one short, came in intact, but Nos. 9 and 58 had both lost two machines *en route*. Final placings were:—(1) No. 99. (2) No. 7. (3) No. 9. (4) No. 58.

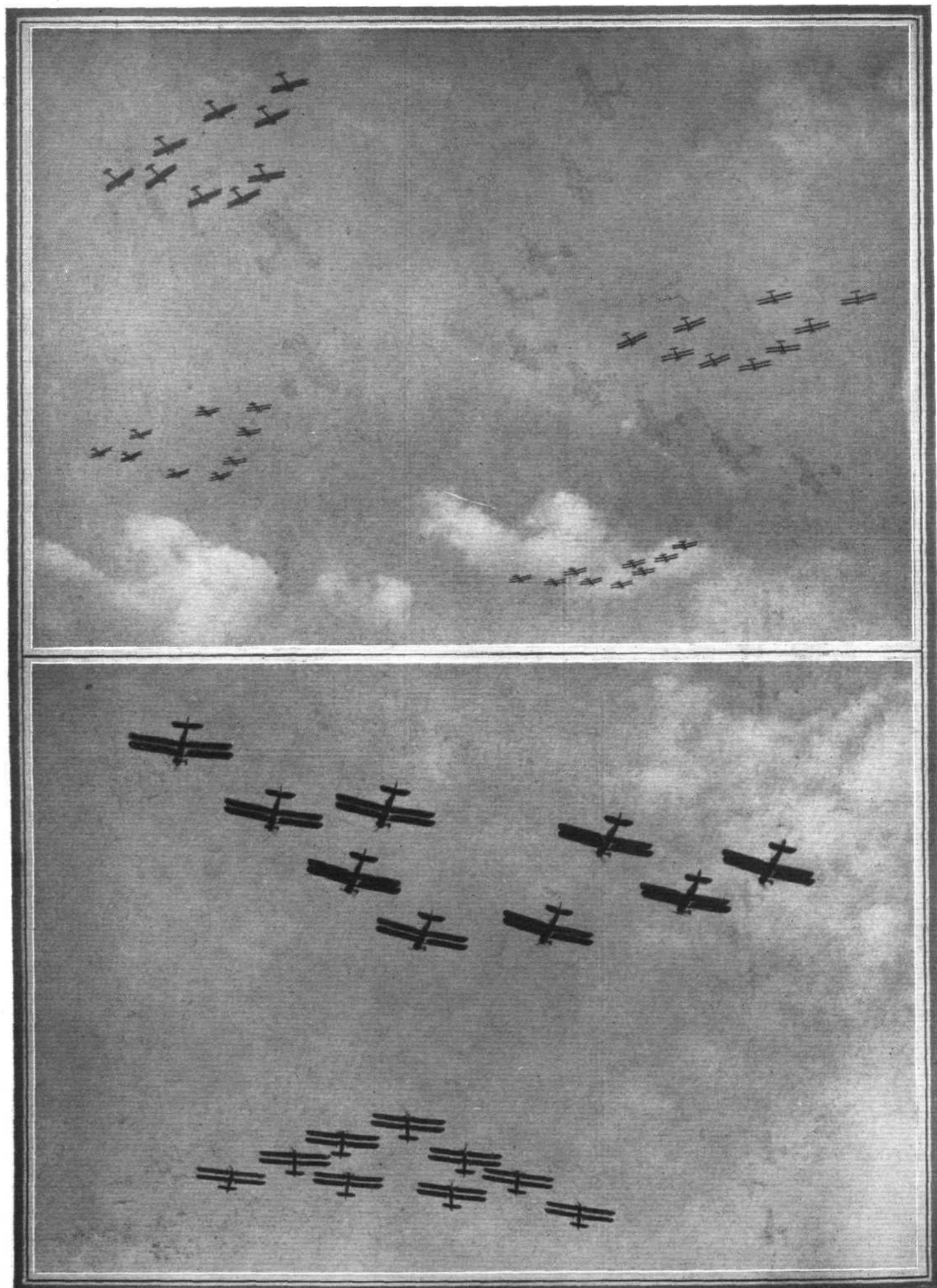
And so ended one of the finest flying displays ever produced.





["FLIGHT" Photographs]

AT THE R.A.F. DISPLAY: Four movements in the air drill by wireless carried out by No. 25 Squadron. Left (top) "Squadron"; (bottom) "Flight Mass Line Abreast." Right (top) executing a half-roll; (bottom) right about turn (via a loop).



[“FLIGHT” Photographs]

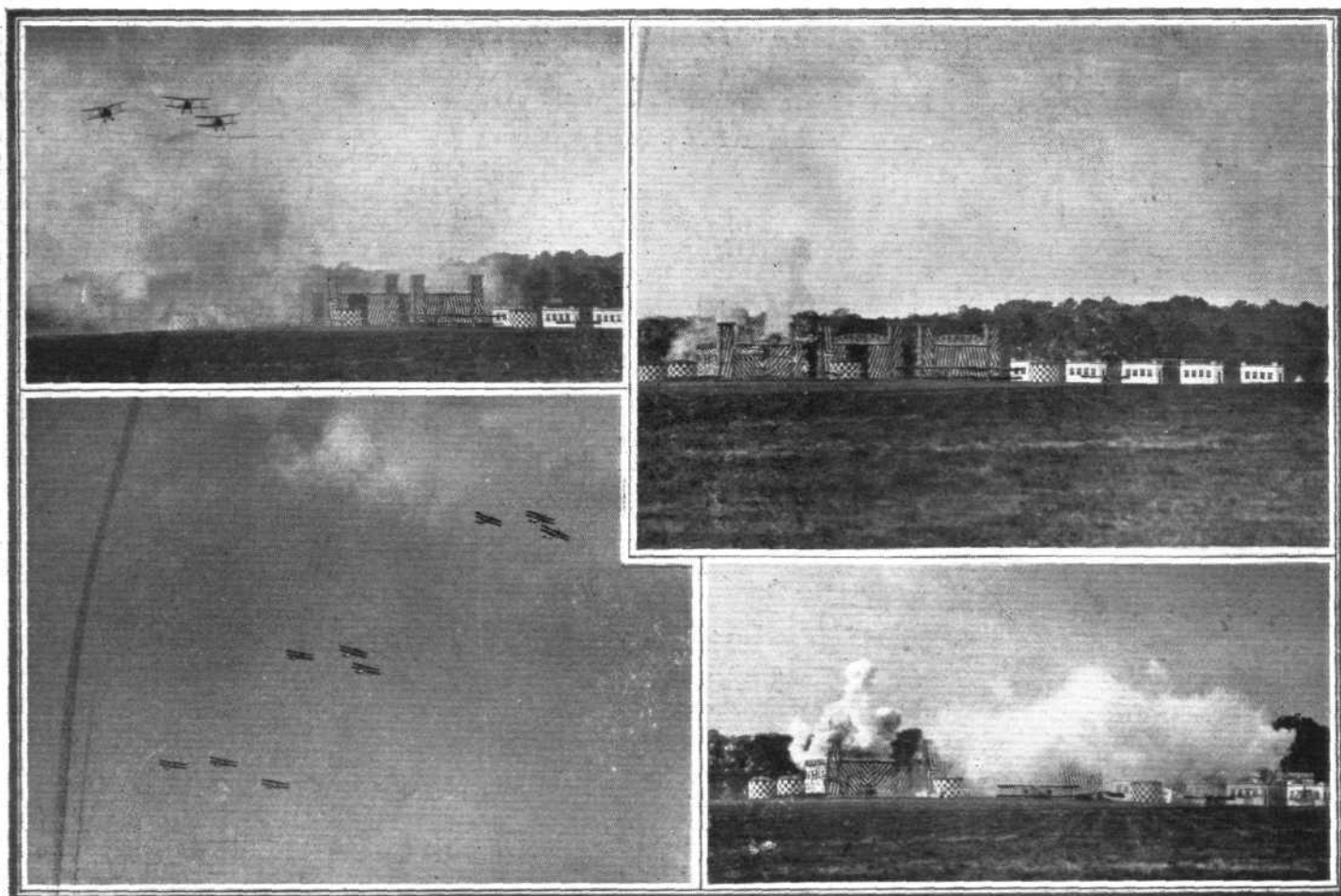
**MORE GROUP EVOLUTIONS :** These were carried out by two Wings of two day-bombing squadrons (Nos. 11 and 12, Fairey Fawns, and Nos. 39 and 207, D.H. 9As). In the top view the four squadrons flying together, and below, flying towards one another.





[ " FLIGHT " Photograph

**A FINE FORMATION :** Here each of the two day-bombing squadrons, in " Squadron " formation, pass over each other and produce a wonderful pattern.



[“ FLIGHT ” Photographs]

THE “ SET PIECE ” AT THE R.A.F. DISPLAY : An attack by fighters and day bombers on a hostile aerodrome. The two top views show No. 43 Squadron (Gamecocks) attacking, at low altitude, with machine gun fire and light bombs, after which they call up No. 12 day-bombing squadron (Fawns), seen below on the left, which blows up the hangars, as shown on the right.



[“ FLIGHT ” Photograph]

AT THE R.A.F. DISPLAY: The first event brings the proceedings to a close. The night-bombing squadron, No. 99 (Handley Page “ Hyderabad ”), is the first to return to Hendon after its 500-mile flight.



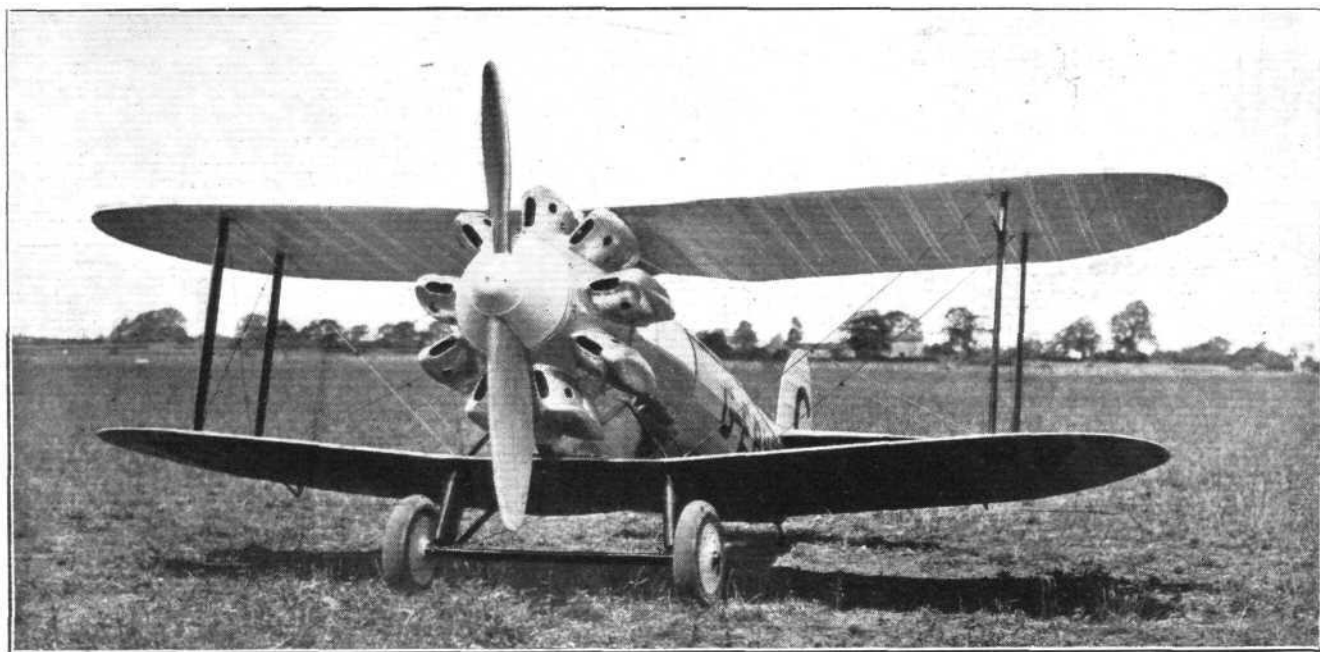
# THE BRISTOL "BADMINTON"

## An Interesting King's Cup Entry

WE are able this week to give particulars and illustrations of the latest product of the Bristol Aeroplane Co., Ltd., of Filton—the Bristol "Badminton." Incidentally, also, this machine has been entered by Sir George Stanley White for the forthcoming King's Cup Race, in which it will be piloted by Capt. F. L. Barnard. In this connection it will be the only entirely new type of machine taking part in this year's King's Cup Race—at least, as far as we know at the time of writing.

"Bullet" which put up a good performance in previous aviation events. Actually, however, it is a vastly different proposition, and from the technical view-point possesses numerous extremely interesting features.

The main planes, of which the top one has a slightly larger span, are more or less of normal design having front and rear spars, ribs and leading edge of silver spruce, and a trailing edge of steel tube; the usual internal drag struts of steel



THE BRISTOL "BADMINTON": Three-quarter front view showing the very neat cowling over the Bristol "Jupiter" air-cooled engine.

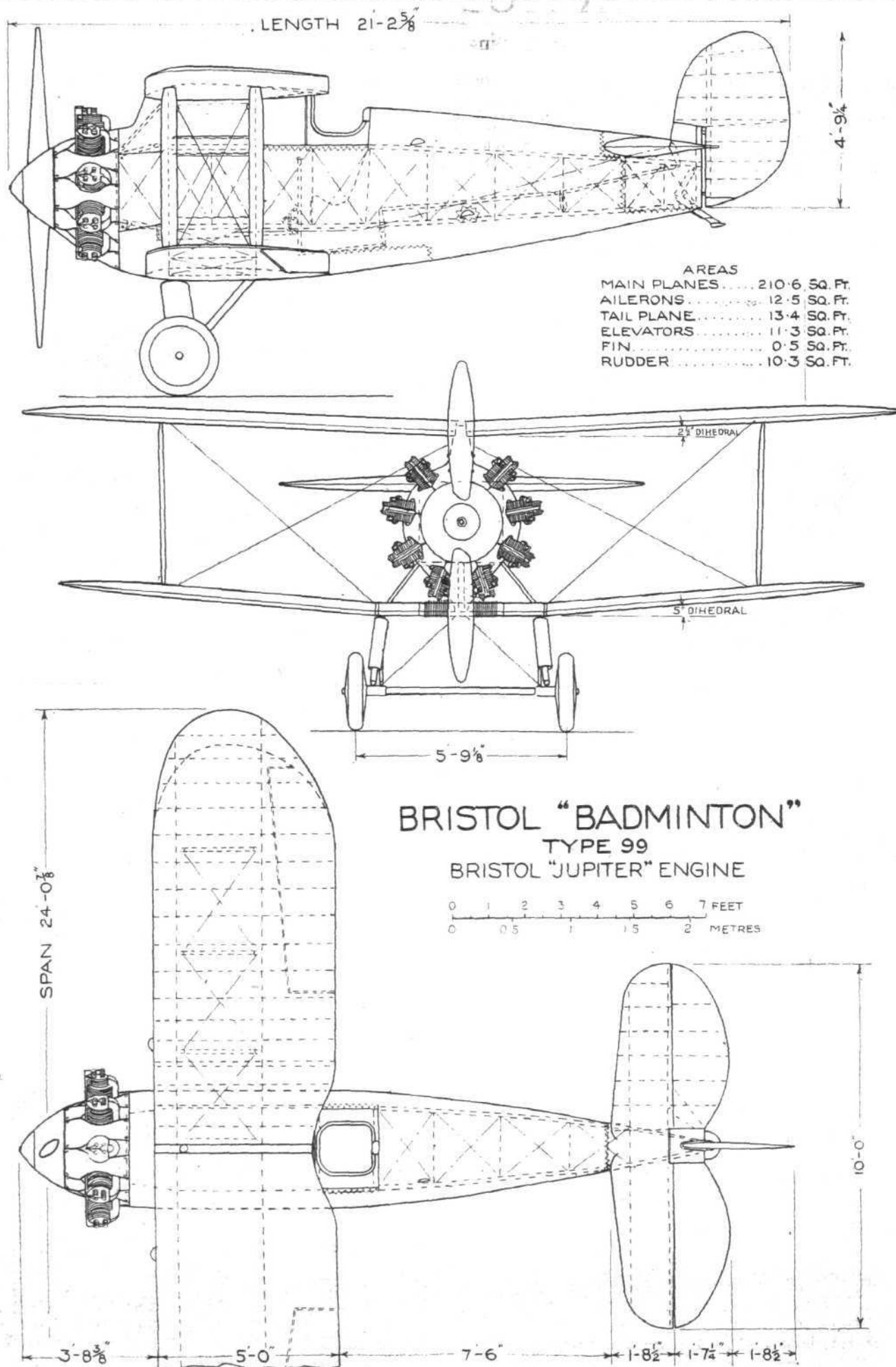
The Bristol "Badminton," Type 99, has been designed to provide a really fast aircraft equipped with a radial air-cooled engine, whilst at the same time no sacrifice of strength or safety has been made in order to produce a pure racing aircraft. In other words, the "Badminton" may best be described as a cross-country racer.

As will be seen from the accompanying illustrations, the "Badminton" is a tractor fuselage biplane and, externally, constitutes a highly modern version of the famous Bristol

tube and cross-bracing of H.T.S. tie rods are also employed. An unusual feature of the wing construction, however, consists of the spar arrangement. Each spar consists of a pair of channel section members, back to back, with a space of about 1½ ins. between their backs, in which spaces are fitted the anchorages for the external bracing wires and interplane struts. These anchorages each consist of a large diameter hollow steel pin which passes, fore and aft, through the neutral axes of the pair of spar members. Threaded on to this pin,



THE BRISTOL "BADMINTON": Side view of the new "cross-country racer" which will take part in the King's Cup Race, piloted by Capt. F. L. Barnard who is seen standing beside the machine.



THE BRISTOL "BADMINTON" : Plan, side and front elevations to scale.



in the space between the spar members, is a pair of nickel steel links, one with a forked and the other with a plain eye; to the screwed shank of the latter is screwed the end fitting of the interplane strut, while the end of the flying wire is attached to the forked end of the link. This arrangement ensures no offset bending moments and gives as direct transmission of stress from strut to wire and from spar to wire as is possible.

Top and bottom wings are of similar construction, but ailerons are fitted to the latter. The ailerons taper from tip to root, and it should be noted that their outer ends fall somewhat short of the wing tip. These ailerons have hollow box spruce spars, hinged to a false spar in the wing, and they are actuated by a single crank on the underside of the aileron connected by a push and pull tube to the aileron control gear passing through the lower wing to the control column in the fuselage.

"Bristol No. 1A" wing section is used for the top plane, which has a dihedral angle of  $2\frac{1}{2}^\circ$ , and "R.A.F. 25" section is used for the lower plane which has a dihedral of  $5^\circ$ .

The top wing anchorage consists of two posts (front and rear) mounted vertically on the centre line of the top of the fuselage, built up each of a pair of sheet steel channels braced to the top corners of the fuselage by tubular struts. These posts are connected at their upper ends by a tubular steel strut, while a drag strut also connects the upper end of the front post to the engine mounting plate. The "cabane" thus formed is very neatly paired into the fuselage and wings.

The bottom wings are attached to a small centre section, which is anchored to the fuselage by a similar arrangement to that just described, except that the drag-strut is replaced by drag and anti-drag bracing of H.T.S. tie-rods fitted between the posts; in addition, four struts of streamline section steel tube are fitted between the bottom corners of the fuselage and the outer ends of the centre section spars.

The centre section has spars, internal drag struts and trailing edge of steel tube, the ribs and leading edge being of silver spruce. The centres of the spars are attached to the feet of the anchorage posts, whilst M.S. fittings on the spar ends provide anchorages for the four streamlined bracing struts, wing bracing lift wires, and the upper ends of the chassis struts.

It will be observed that an exceptionally neat streamlined fuselage obtains in the "Badminton." The main fuselage structure is of approximately square cross section. It is a braced girder consisting of four longitudinals, vertical and cross struts of silver spruce, braced by H.T.S. tie rods. The top and bottom of the fuselage, from front and back to pilot's cockpit, are covered with 3-ply wood. The rear end of the fuselage is also covered, top, bottom and sides with 3-ply wood for the extent of the two rearmost bays. The fuselage fittings, which attach ends of struts to longitudinals and provide anchorages for ends of tie rods, are of nickel-chrome sheet steel. The sternpost of the fuselage is of box section with sides of silver spruce, and front and rear faces of 3-ply wood; it projects about 12 in. above the top of the fuselage.

The whole body is very carefully faired—the engine cowling forming the fairing back to the fireproof bulkhead; from fireproof bulkhead back to pilot's cockpit the "gravity" tank, "side" tank and oil tank conform to the faired shape, the spaces between tanks and between tanks and bottom centre section being filled in by detachable panels of sheet aluminium. The pilot's cockpit opening is faired in with sheet Duralumin; the port panel, being hinged along its lower edge to the top port longitudinal of the fuselage, may be folded down to allow of ingress and egress of the pilot, and is held closed by two self-locking bolts.

Aft of the pilot's cockpit the covering is of standard linen fabric laced on in detachable panels. This cover is supported on closely-spaced fore and aft spruce stringers, which are mounted upon formers (of spruce and thin 3-ply wood) attached to the fuselage struts.

The engine—a 9-cyl. Bristol "Jupiter," series VI., fitted with variable timing gear—is mounted on a square flanged

mounting plate of mild steel sheet. Four tubular steel struts attach the corners of this plate to steel fittings bolted to the forward corners of the fuselage; cross bracing is by H.T.S. tie-rods. The very neat engine cowling is composed of two portions. The front portion consisting of 9 sheet Duralumin "helmets," fitting over each cylinder—each being easily and quickly removed—and the rear portion consisting of four sheet aluminium panels, top, bottom and sides, completely covering the engine. Top and bottom panels are attached by studs to the rear cowl-frame in front and to the edge flange of the fireproof bulkhead at the rear. The side panels have quick detachable fasteners and may be removed in a few seconds. The front and rear cowl-frames are of M.S. tube and are attached respectively to the forward end of engine crankcase and to engine mounting plate.

Attached to the forward end of the fuselage, immediately behind the engine, is the fireproof bulkhead, consisting of a sandwich of asbestos sheet between two aluminium sheets.

The tail plane is symmetrical about a horizontal plane of symmetry. It tapers in thickness and also, to a small extent, in plan. It is constructed of two box-section spars (built up with silver spruce flanges and webs of 3-ply wood) ribs of silver spruce, internal drag struts of steel tube, internal cross-bracing of H.T.S. tie rods. Its leading edge is covered with thin sheet Duralumin back to the front spar. A tail fairing of sheet aluminium is attached to the centre of the rear spar, filling up the gap between the elevator flaps. The tail plane is non-adjustable, being bolted directly on to four fittings on the top corners of the fuselage.

The divided elevators, of steel and Duralumin construction, are mounted on a continuous spar of steel tube, in the centre of which is the operating crank to which is connected the control gear passing through the fuselage. The rudder is of the balanced type of ample proportions, built up of spruce spars and ribs with steel tube "edging." The vertical "fin" finishes almost before it commences and really consists of a sheet aluminium nose-fairing box screwed to the sides of the sternpost.

An Oleo undercarriage is fitted, consisting of a pair of Palmer wheels mounted on a straight axle of n-c steel tube which is attached to a pair of Oleo struts and a pair of steel tube radius struts. The tail skid is of the non-steerable type with oil-damped absorber.

The fuel tanks are three in number—a 15-gal. gravity tank within the top wing anchorage; a main 34-gal. tank inside the fuselage and 10-gal. tank alongside the latter. Petrol is pressure fed, although as the bottoms of the tanks are, normally, above the level of the carburettors, only a very low air-pressure is required. The oil tank is mounted on the forward right-hand side of the fuselage, and two oil coolers are provided, No. 1 being incorporated in the leading edge of the lower plane centre section, and No. 2 being incorporated in the oil tank.

There are many other important detail features of the "Badminton," but we are afraid that lack of space necessitates a description of these being postponed until a future issue of *FLIGHT*. We must, therefore, conclude this week's description with the following main characteristics of the "Badminton."

Overall span	..	..	..	24 ft. 0 $\frac{1}{2}$ in.
Overall length	..	..	..	21 ft. 2 $\frac{3}{4}$ in.
Chord	..	..	..	5 ft.
Total, wing area	..	..	..	210.6 sq. ft.
Area of tail plane	..	..	..	13.4 sq. ft.
Area of elevators	..	..	..	11.3 sq. ft.
Area of fin	..	..	..	0.5 sq. ft.
Area of rudder	..	..	..	10.3 sq. ft.
Area of ailerons	..	..	..	12.5 sq. ft.
Weight, empty	..	..	..	1,840 lbs.
Weight, laden	..	..	..	2,460 lbs.
Weight, per sq. ft.	..	..	..	11.68 lbs.
Weight per h.p.	..	..	..	4.82 lbs.

### An Experimental Flight to Abukir

On July 1 two supermarine Southampton flying boats, with Napier Lion engines, of the F.B. Development flight at Felixstowe, left Plymouth to fly by stages to Abukir. They reached Calafra, Malta, on July 6, and the remaining stages of the flight are to be Bengazi, Sollum, while the return journey will be via Sollum, Athens, Corfu, Malta, Naples, Marseilles, Bordeaux to Plymouth.

### No. 20 Squadron Reunion Dinner

THIS cheery show was held at Gatti's on July 3, with

Maj. W. H. C. Mansfield, D.S.O., as chairman. The usual toasts were given, and a message was sent to No. 20 Squadron now in India. It was resolved that the next reunion should again take place on the R.A.F. display date, as and when fixed for 1927. This arrangement enables many members to attend both events. All past and present officers of No. 20 Squadron desirous of attending next year are asked to keep this fixture in mind, and those who have not already done so are requested to communicate their desire to attend, and their permanent address to the Hon. Secretary, T. A. Metford Lewis, Postling, near Hythe, Kent.

# THE KING'S CUP AIR RACE

To be Held on July 9 and 10, with Start and Finish at Hendon

FROM the table given below it will be seen that there are 16 entries for this year's—the fifth—King's Cup Air Race, which will be flown during Friday and Saturday next, over some 1,500 miles. Of the sixteen machines entered, there

794 miles in 5 hrs. 25 mins. 27 secs. = 150 m.p.h. 1924 Alan J. Cobham on D.H. 50 (230 Siddeley "Puma"), 950 miles in 8 hrs. 57 mins. 12 secs. = 106.6 m.p.h. 1925: F. L. Barnard on Armstrong-Whitworth "Siskin V" (395 Siddeley

## COMPETITORS IN KING'S CUP RACE

Identification Letters.	Machine and Engine.	Entrant.	Pilot.	Handicap Allowance (First Day)	Starting Time (First Day).
				h. m. s.	h. m. s.
G-EBLI	.. D.H.60 "Moth," 65 h.p. C.I.	.. Duke of Sutherland	.. Capt. F. G. M. Sparks	.. 4 41 35	8 0 0
G-EBMO	.. D.H.60 "Moth," 65 h.p. C.I.	.. Sir Chas. Wakefield	.. Capt. H. S. Broad	.. 4 41 35	8 0 0
G-EBME	.. D.H.60 "Moth," 65 h.p. C.I.	.. W. L. Hope	.. W. L. Hope	.. 4 41 35	8 0 0
G-EBLW	.. D.H.60 "Moth," 65 h.p. C.I.	.. Maj. Gilbert Dennison	.. Capt. W. J. McDonough	.. 4 35 07	8 6 28
G-EBNO	.. D.H.60 "Moth," 65 h.p. C.I.	.. Capt. G. de Havilland	.. Capt. G. de Havilland	.. 3 57 11	8 44 24
G-EBMC	.. Cranwell mono., 25 h.p. B.C.	.. Sq.-Ldr. W. Thomas	.. Flt.-Lieut. N. Comper	.. 3 25 44	9 15 51
G-EBIQ	.. D.H.51, 120 h.p. A.	.. Air Com. J. G. Weir	.. Col. Master of Sempill	.. 3 21 26	9 20 9
G-EBDK	.. Martinsyde F.6, 200 h.p. W.V.	.. Leslie Hamilton	.. Leslie Hamilton	.. 2 2 53	10 38 42
G-EBDO	.. D.H.37, 300 h.p. A.N.	.. A. S. Butler	.. A. S. Butler	.. 1 49 42	10 51 53
G-EBP	.. Vickers "Vixen III," 450 h.p. N.L.	.. Douglas Vickers	.. Flt.-Lieut. E. R. C. Scholefield	.. 1 42 16	10 59 19
G-EACZ	.. "Swallow" mono., 130 h.p. Cl.	.. D. A. N. Watt	.. D. A. N. Watt	.. 1 39 23	11 2 12
G-EBOJ	.. Nimbus-Martinsyde, 300 h.p. A.N.	.. Lieut.-Col. M. O. Darby	.. H. H. Perry	.. 1 20 54	11 20 41
G-EBOL	.. Nimbus-Martinsyde, 300 h.p. A.N.	.. Lieut.-Col. J. Barrett-Lennard	.. Capt. F. T. Courtney	.. 1 20 54	11 20 41
G-EBKL	.. Martinsyde A.D.C.I., 395 h.p. S.J.	.. Lieut.-Col. M. O. Darby	.. Sq.-Ldr. H. W. G. Jones	.. 0 58 46	11 42 49
G-EBON	.. Parnall "Plover," 400 h.p. B.J.	.. George G. Parnall	.. Sq.-Ldr. J. O. Brand	.. 0 33 42	12 7 53
G-EBMK	.. Bristol "Badminton," 400 h.p. B.J.	.. Sir G. Stanley White	.. Capt. F. L. Barnard	.. Scratch	12 41 35

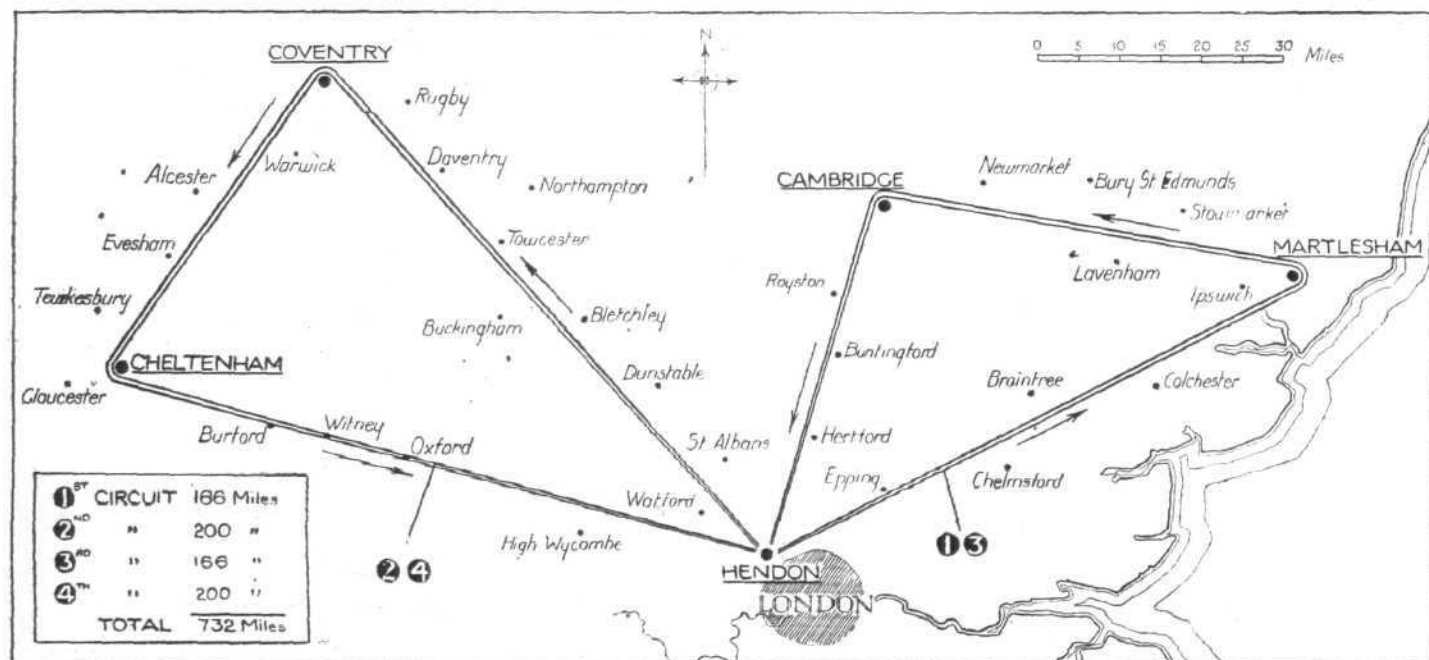
Abbreviations.—A. = "Airdisco." A.N. = A.D.C. "Nimbus." B.C. = Bristol "Cherub." B.J. = Bristol "Jupiter." C. = "Cirrus." Cl. = Clerget. N.L. = Napier "Lion." S.J. = Siddeley "Jaguar." W.V. = Wolseley "Viper."

are eleven distinct types, one of which—the Bristol "Badminton"—is an entirely new type, and which is described in detail elsewhere in this issue. With this exception the machines are all of well known types, and it will not, therefore, be necessary to give any particulars of them here, but on subsequent pages will be found illustrations of these different types—not necessarily the actual machines taking part in this year's race, but at any rate similar models. It will be seen that the D.H. family are very much in evidence, and that there will be quite a "formation" of "Moths" following the course.

Before dealing further with this year's race, it may perhaps be of interest if we give here the winners of the previous King's Cup Races. These were as follows:—1922: F. L. Barnard on D.H. 4A (350 Rolls-Royce "Eagle VIII," ) 850 miles in 6 hrs. 32 m. 50 s. = 124 m.p.h. 1923: F. T. Courtney on Armstrong-Whitworth "Siskin" (325 Siddeley "Jaguar"),

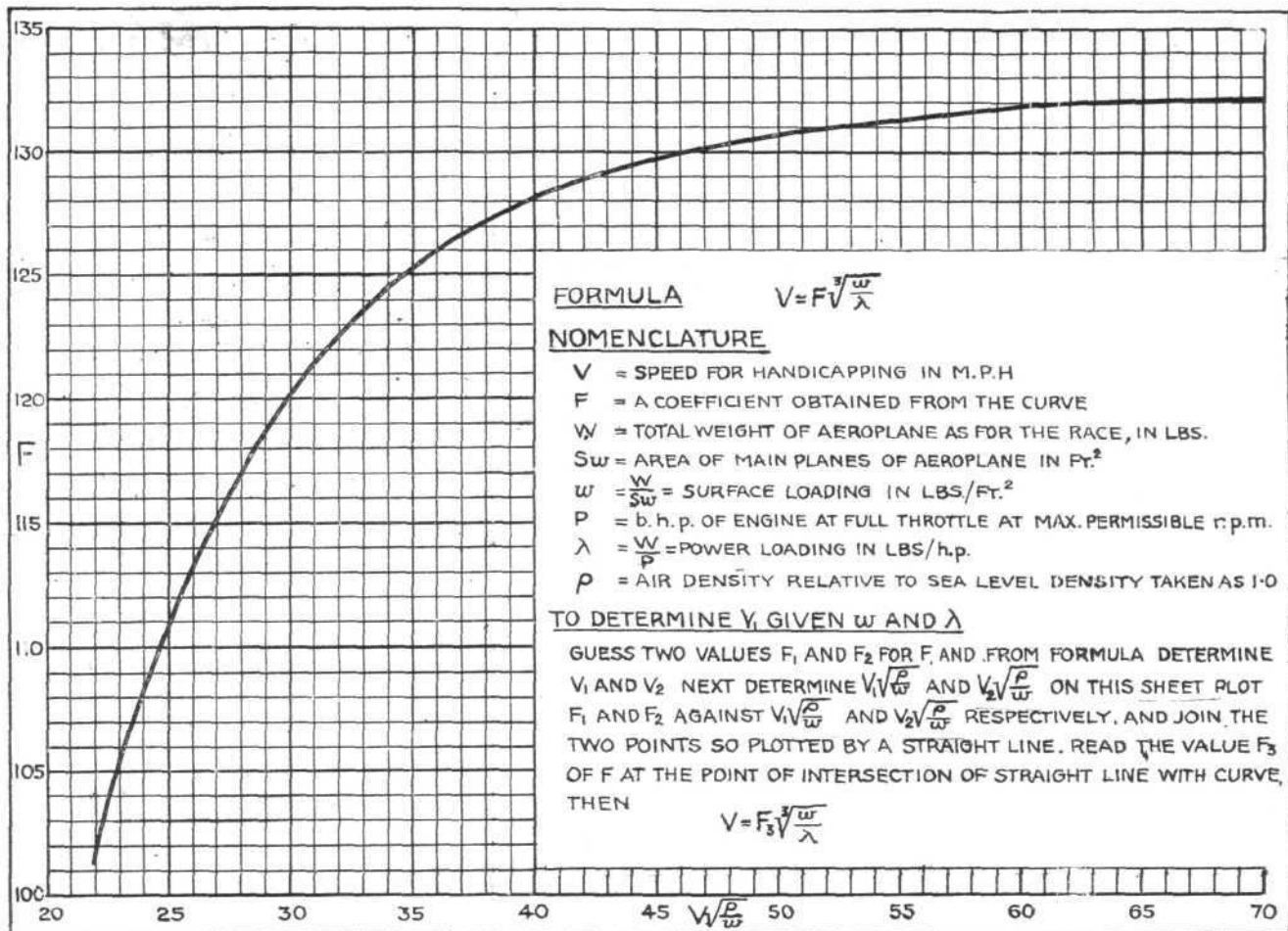
"Jaguar"), 1,608 miles (two days) in 11 hrs. 30 mins. 15 secs. = 140.5 m.p.h.

In some ways it is, perhaps, unfortunate that the race for the Challenge Cup presented by His Majesty the King should come so soon after the Royal Air Force Display at Hendon, since it is to be feared that many of those who visited the Display will not feel inclined to go to the Hendon aerodrome again, tomorrow, Friday. Moreover, a handicap race is not likely to provide quite the same "thrill" as did the various events at the Display, and so those who are more particularly interested in spectacular evolutions are somewhat apt to feel a certain disappointment with a race spread over two days, and in which there is nothing of "stunting." For all that, the King's Cup Race, especially the second day of it, should prove of considerable interest to those who find pleasure in sporting



THE RACE FOR THE KING'S CUP: Sketch map of the course to be followed on each day. The figures indicate the sequence of the out-and-home laps.

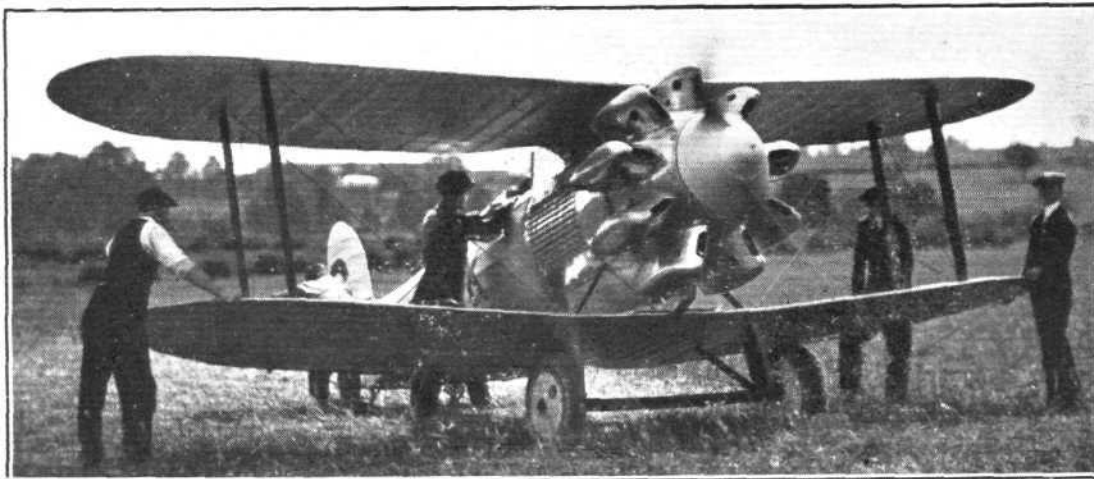




**HANDICAPPING THE KING'S CUP RACERS :** This chart will be used as a basis for judging the speeds of the machines taking part in the race, the factors taken into consideration being the wing loading and the power loading.

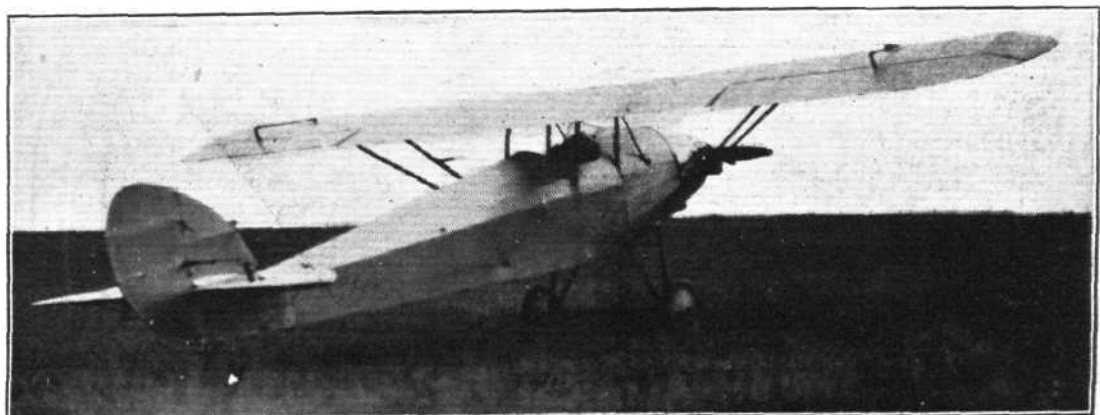
civilian flying, the more so as the machines will be returning to the Hendon aerodrome four times during each day, and it will thus be possible to follow the progress of the race

much more closely than has been the case in previous years. It is, therefore, to be hoped that visitors to the Display will realise that although the race for the King's Cup should

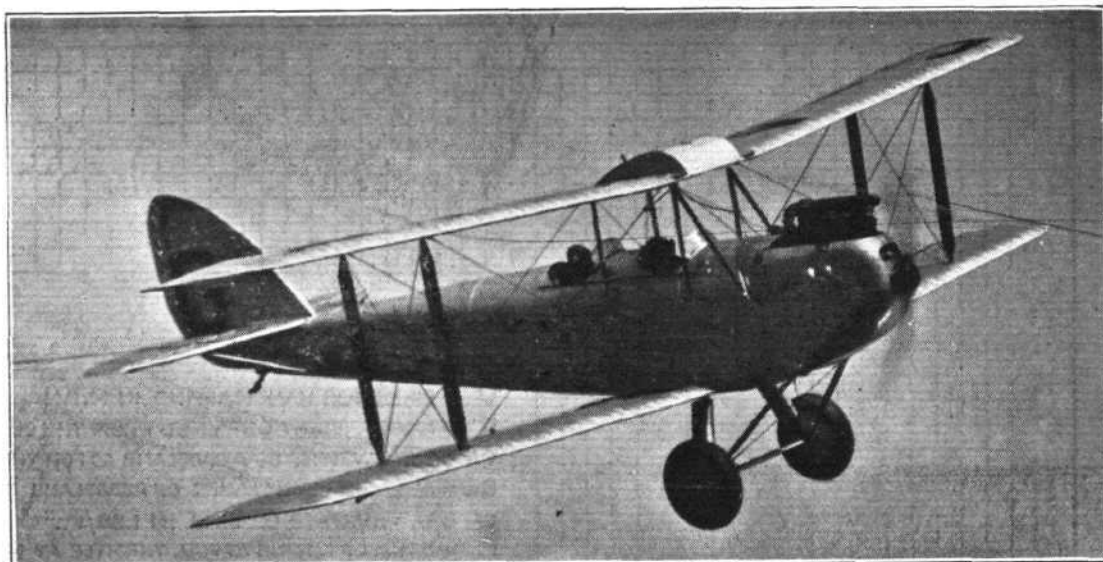


The King's Cup:  
The Bristol  
"Badminton"  
400 h.p. "Jupi-  
ter" is the only  
absolutely new  
type in the race.

The King's Cup:  
The Cranwell  
C.L.A.3 mono-  
plane, 25 h.p.  
Bristol "Cherub"  
III, is already  
known to our  
readers.



The King's Cup :  
The D.H. "Moth,"  
27-60 h.p. "Cir-  
rus" I and II.  
Five of these  
machines are  
entered.

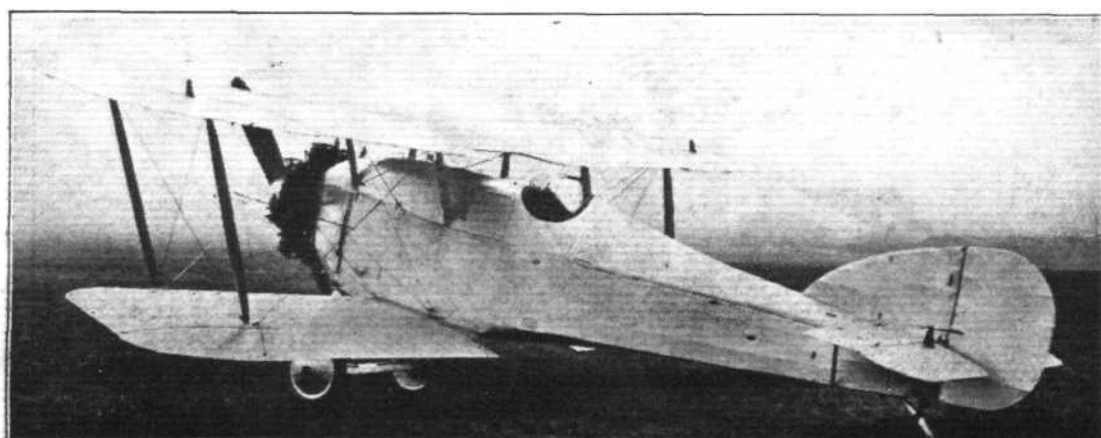


The King's Cup :  
The D.H.37 will  
this year have a  
300 h.p. "Nim-  
bus" engine.  
Herewith, is the  
original "Sylvia"  
with Rolls-  
Royce "Falcon."

The King's Cup :  
Another member  
of the "D.H."  
family, the "51,"  
with 120 h.p.  
"Airdisco"  
engine.



The King's Cup :  
The Martinsyde  
A.D.C.I, 395 h.p.  
Siddley  
"Jaguar" has  
taken part in this  
race before.







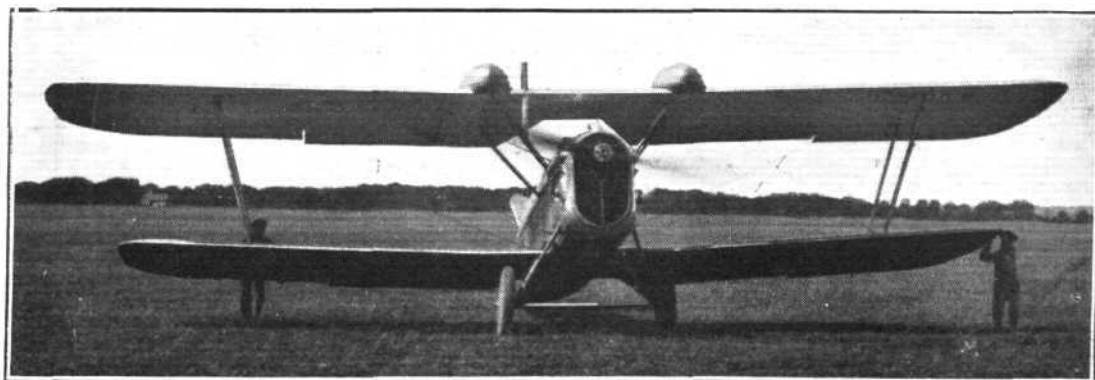
The King's Cup :  
This is the famous Martin-syde F.6 (200 h.p. Wolseley "Viper"), originally owned and flown by F. P. Raynham in previous races. Its new pilot will be Leslie Hamilton.

The King's Cup :  
The Nimbus-Martinsyde, 300 h.p. "Nimbus," two of which are entered, is the latest product of A.D.C. Aircraft, Ltd.



The King's Cup :  
The "Swallow" mono., 130 h.p. Clerget, was originally the late Harry Hawker's sporting and touring 'bus.

The King's Cup :  
A similar Vickers "Vixen" to that shown, with 450 h.p. Napier "Lion," is entered this year.



The King's Cup :  
The Parnall  
"Plover," 400  
h.p. Bristol  
"Jupiter," was  
originally de-  
signed as a ship's  
fighter.



not be expected to equal the Display as a spectacle, yet it will be very well worth witnessing, and on the second day, at any rate, some exciting finishes may be expected.

#### SUPPLEMENTARY REGULATIONS

As the regulations governing the King's Cup Race have already been published in *FLIGHT*, although in somewhat fragmentary form, it is not proposed to give again this week these regulations in full, but it is hoped that the following summary will be of assistance in enabling those interested to form a general idea of the objects of the race and the main regulations governing it.

The King's Cup Race is a Handicap Race in which the machines are handicapped according to a time allowance basis for the two courses, half of the total handicap being allotted to each course. The race is being held under the competition rules of the Royal Aero Club of Great Britain the club being responsible for the organisation of the race.

Entrants and pilots must be British subjects, and entrants must be private individuals and not companies. The race is open to any type of aircraft, but both the aircraft and the engines must have been entirely constructed in the British Empire. Competitors must comply with the Air Navigation regulations and each aircraft must have its airworthiness certificate.

#### The Course

Originally it had been intended to plan the course for this year's King's Cup Race on the lines of the German *Rundflug* last year, i.e., with Hendon as the centre from which the machines were to "radiate" in various directions. The turning points that had been chosen were : Martlesham Heath (Suffolk) Cambridge, Coventry, Cheltenham, and Salisbury, and the intention was that machines should leave Hendon, go to Martlesham, return to Hendon, go to Cambridge, return to Hendon, go to Coventry, return to Hendon, and so forth. While this scheme would have had the advantage that machines would return to Hendon at frequent intervals during the day, it was pointed out that machines on the homeward journey would be meeting other machines on the outward journey and that thus, if the visibility should chance to be poor, as was very much the case last year, there was very considerable risk of machines colliding in the air. As a result it was decided to change the course somewhat, so that instead of the series of out-and-home flights, the machines will on each lap cover a triangle. The first of these triangles will be formed by Hendon Martlesham and Cambridge, the second by Hendon, Coventry and Cheltenham; the third and fourth being repetitions of the first and second.

The distances are as follows : Hendon-Martlesham, 72 miles ; Martlesham-Cambridge, 49 miles ; Cambridge-Hendon 45 miles. Total 166 miles. Hendon-Coventry, 74 miles ; Coventry-Cheltenham, 44 miles ; Cheltenham-Hendon, 82 miles. Total 200 miles. As each of these two circuits has to be flown twice, on each day, the machines have to cover a distance of 732 miles, or 1,464 miles for the two days. On returning to Hendon from Cambridge there is a compulsory stop of 30 minutes, and from Cheltenham the compulsory wait at Hendon is 1 hour before machines are allowed to start for Martlesham for the second time.

**Turning Points.**—Following are the four turning points : At Martlesham Heath a 30 ft. flagstaff flying the Royal Air Force Ensign, planted at the initial letter "M" in the name of the station "Martlesham Heath," set out in chalk letters on the middle of the aerodrome. At Cambridge, a white cross on the ground in a field 200 yards east of Cambridge railway station. At Coventry, Whitley aerodrome, 3 miles south of Coventry. Wind cone on the extreme south hangar on the aerodrome. At Cheltenham, Brockworth aerodrome 7 miles south-west of Cheltenham and 3 miles east of Gloucester. White cross on the aerodrome.

#### The Handicap

As already mentioned the machines will be handicapped on a time allowance basis, half of the total handicap being allotted to each course. The machines will be started from the Hendon aerodrome in accordance with the handicap allotted for the first course. For the second course, i.e., on the second day, Saturday, July 10, machines will be started from the Hendon aerodrome in accordance with the handicap allotted for that course, plus or minus the time gained or lost on their handicap for the first day.

This year the basis for working out the handicap allowances will be slightly different from that employed in previous years, in that the speed of each machine will be estimated according to the formula  $V = F^3 \sqrt{\frac{1}{W}}$  the value of  $F$  being

determined from the curve reproduced herewith. As full instructions for using the curve are given on the chart, there is no need here to do other than point out that the basis for estimating the speed of the machines is one of wing-loading and power-loading, the two factors which most affect the question of speed. The formula undoubtedly provides a simple way of estimating the speed for handicap purposes, although the result may not be very accurate as a speed estimate in itself. We have attempted to check the results given by using this formula by carrying out the speed estimates of known machines, and in most cases the handicap formula appears to under-estimate the speed somewhat. This appears to be so particularly with machines of relatively high power-loading and low wing-loading, while for machines of the single-seater fighter type the speed estimates seem to be surprisingly accurate. One objection which naturally comes to mind is that the formula does not take into account the "fineness" of a machine, and that thus of two machines with the same power loading and wing loading, the more "refined" machine will have an advantage over the one with less "clean" lines. Actually for such speeds as may be expected to be attained in the King's Cup Race this is probably of less importance than might have been imagined, and will perhaps influence the final results much less than will the weather conditions obtaining during the race.

It is, of course, well known that a slow machine is affected more by strong winds than is a very fast machine, but as the handicap formula appears to favour the slower machine somewhat, perhaps things will level themselves out to a not inconsiderable degree, and one advantage of the use of the formula is that every competitor will know how his own and



his rivals' machines stand in the matter of handicap, and there can be no question of unfair handicapping. Not that we would hint in any way that there has ever been any suspicion that handicapping was other than perfectly fair in any race held by the Royal Aero Club, but so long as handicapping is left to the judgment of an individual there is always room for errors of judgment to creep in, and thus it is emphasised that handicapping was ever a thankless task. This year the fact that the work of handicapping has been rendered purely "mechanical" should at any rate put all the cards on the table, and there can be no question of beating the handicapper (figuratively, of course!), unless the engine power at full throttle is wrongly given, and as the Royal Aero Club reserves the right to verify the particulars supplied there is little fear of anything untoward taking place.

The machines must be at Hendon aerodrome, completely erected, not later than 4 p.m. on Thursday, July 8, for verification by the officials, and must not leave the aerodrome after verification until their starting times each day in the race itself.

For the start of the race, the machines must be on the starting line 10 minutes before their official time of starting. The official starter will stand to one side of the machine, and will raise his red flag 10 seconds before the actual time to start. The smart dropping of the red flag is the signal to start, and a competitor's time will be taken from this moment. Landings between Hendon and the turning points are permitted, but, of course, any time so spent will count as flying

time. On arrival at Hendon, competitors will be timed at the moment of crossing, in flight, between two white crosses on the aerodrome. These crosses will be placed north-west and south-east, and competitors must pass between the crosses from the north. The same aircraft and engine must be used throughout the race, but repairs and replacements are permitted, and replacements need not be carried on board.

Pilots must not be changed during the race, except in the event of a special emergency, and then only at Hendon and with the consent of the officials. The total weight of the aircraft must be maintained throughout the race, with the exception of the fuel, oil and water consumed. Passengers may be carried and must be declared as part of the total weight. If any passenger is discarded during the race, 170 lb. of ballast must be carried in place of each passenger discarded.

The usual stipulations are made concerning responsibility, third party risks, &c.

#### PRIZES.

The following are the prizes offered for the 1926 King's Cup Air Race:—*Winner*—The Challenge Cup presented by His Majesty the King, and £100 presented by Sir Charles Wakefield, Bart. *Second Prize*—£75, presented by the Royal Aero Club. *Third Prize*—£50, presented by the Royal Aero Club. In addition, Sir Charles Wakefield will present a Prize of £100 to the entrant of the machine which completes the course in the fastest scratch time, and the Royal Aero Club will present souvenir prizes to the pilots who complete the whole course within the specified time.

## COBHAM'S FLIGHT TO AUSTRALIA

It is with extreme regret that we have to announce that a great tragedy has overtaken Mr. Alan Cobham's great flight to Australia, which, too, had started so well. Mr. A. B. Elliott, Mr. Cobham's very able engineer and companion of many notable flights, was fatally injured whilst they were flying from Baghdad along the Persian Gulf.

Full details of the affair are at present lacking, but it appears that after leaving Baghdad on July 6 good progress was being made until they reached the Khor-al-Hannar region, when it seems that the machine, which was flying very low at the time, was shot at from the ground, probably by an Arab. Anyway the bullet passed through the fuselage, struck the petrol pipe and struck Elliott in the arm and chest. At first they thought the petrol pipe had burst—a loud report being heard in the cabin. Cobham at once made for Basra, the nearest spot where medical aid could be obtained, some 100 miles or so away.

On landing at Basra, Elliott was still conscious but obviously very badly hurt, and he was at once removed to hospital, where he was operated on. Hopes of his recovery were announced at first, but the next night Elliott died of the injuries received. It was then clearly established that his injuries were received from a shot fired from the ground, the bullet breaking an arm and rib, and piercing a lung. Full information has been laid at all official quarters in the locality of the outrage—a somewhat unsettled area—and necessary action is being taken.

There will be many who will deeply regret the loss of Mr. Elliott, who was much admired in aviation circles, and no one was able to tend an engine with such care and efficiency as he.

We hope to give fuller details of this unfortunate affair later, and at the moment it is uncertain whether or not Mr. Cobham will continue the flight to Australia.

## PERSONALS

### Married

The marriage took place quietly, on June 30, of Lieut.-Col. A. C. BISHOP, late Berkshire Yeomanry and R.A.F., to GUIDA, widow of Mr. OSCAR HOWESON.

BERNARD WILLIAM HELMSLEY, R.A.F., was married on June 19, at All Saints, Ennismore Gardens, Knightsbridge, to PHYLLIS EVELYN, younger daughter of Mr. and Mrs. G. ARTHUR WINGFIELD, of 31, Albert Hall Mansions, Kensington Gore, S.W.

At the Church of St. Mary Abbot, Kensington, on June 19, the marriage took place between Mr. ALAN INCELL RILEY, A.F.C., R.A.F., son of Mr. Charles Riley, of Tiverton, Clacton, and Charleville Road, W., and Miss ELLA MARIE ADELE VAN OS, only daughter of the late Mr. S. G. van Os and of Mrs. van Os, of Adele House, Kensington, W.

### To be Married

The engagement is announced between Mr. GERARD CHRISTOPHER ALLAN ARMSTRONG, R.A.F., only son of the late Lieut.-Col. A. Armstrong and Mrs. Armstrong, of Dunkirk House, Devizes, and ALEXIA MARY FRANCES BARRÉ, daughter of Mr. and Mrs. Barré Phipps, of St. Nicholas, Esher, Surrey.

The engagement is announced, and the marriage will shortly take place, between Flight-Lieut. LESLIE O. BROWN, D.S.C., A.F.C., son of the late Mr. T. A. Brown, of Durban,

South Africa, and PHYLLIS MARY, only child of the late Mr. T. G. WIDDOWSON and of Mrs. SNEATH, of Helpringham, Lincolnshire.

An engagement is announced between ERIC SCOTT BURNS, R.A.F., younger son of the Rev. James Burns, M.A., and Mrs. Burns, of London, and KATHLEEN LOUISE, younger daughter of Mr. and Mrs. ERNEST SHEPHERD, of Nether Grange, Burntisland, Fife.

The engagement is announced between Flight-Lieut. C. W. BUSK, M.C., R.A.F., younger son of the late R. W. Busk and Mrs. Busk, of Kelvin, Woking, and ENID, younger daughter of the late Rev. L. and Mrs. MORRIS, of Dundaff Muir, Camberley.

The engagement is announced between FRANCIS WALTER FIELD, R.A.F., second son of the Rev. and Mrs. W. P. G. Field, of Brattleby Rectory, Lincoln, and formerly of Christ Church, Yokohama, and KATHLEEN ROSE EKSTRAND, elder daughter of Mr. and Mrs. JOHN D. W. WILSON, London, formerly of Rangoon.

The marriage arranged between Mr. TERENCE HUME LANGRISHE, late Irish Guards and R.A.F., only surviving son of Sir Hercules Langrishe, Bart., and Lady Langrishe of Knocktopher Abbey, County Kilkenny, and JOAN, eldest daughter of Maj. Ralph GRIGG, late 18th Hus., and Mrs. GRIGG, of 42, Hertford Street, Mayfair, will take place at 2.15 p.m. on Thursday, July 8, at St. George's, Hanover Square.

# IN PARLIAMENT

## R.A.F. Reserve

LIEUT.-COMMANDER KENWORTHY, on June 24, asked the Secretary of State for Air what is the total strength of the Royal Air Force Reserve; and what is the number of reserve pilots available for actual flying?

Sir P. Sassoon: As regards the first part of the question, the strength of the Royal Air Force Reserve as at April 30 last was 991 officers and 6,238 airmen. The answer to the last part is 708, of whom 588 are in regular flying practice and immediately available.

## Civil Aviation Mileage

LIEUT.-COMMANDER KENWORTHY asked the Secretary of State for Air the total mileage flown by British civil aircraft during 1925: what was the number of miles flown by Imperial Airways, Limited, and what was the average cost per mile flown?

Sir P. Sassoon: As regards the first part of the question, the total mileage flown by British civil air services flying for hire or reward was 1,031,000 miles; no full record of other mileage flown is available. The answer to the second part is 811,711 miles. As regards the last part of the question, I am not sure what the hon. and gallant Member has in mind, but, on the assumption that he is referring to the cost to the State of subsidised services, the answer is 3s. 4½d. per mile flown.

Lieut.-Commander Kenworthy: Would it be possible to give me information—not necessarily now—as to the total cost, say per ton mile flown, or some formula of that kind?

Sir P. Sassoon: Perhaps the hon. and gallant Member will put a question down.

Colonel Day: Do the figures show an increase of mileage flown over 1924?

Sir P. Sassoon: There is an increase, but the whole basis has now been altered, and it is going to be horse-power miles.

## General Strike and Reinstatement

MR. PETHICK-LAWRENCE asked the Secretary of State for Air whether his attention has been drawn to the refusal of Messrs. Taylor, Taylor & Hobson, Ltd., of Stoughton Street Works, Leicester, to reinstate some 30 of their men since the general strike unless they leave their trade union; and whether, in view of the fact that this firm is on the list of contractors to the Air Ministry, he will take such facts into consideration in the allotment of future contracts?

Sir P. Sassoon: I have no information in regard to the case referred to by the hon. Member, but the matter is in any event not one falling within the scope of the Fair Wages Clause in Government contracts, and appears to be one for discussion between the parties concerned.

Mr. Pethick-Lawrence: Will the hon. Baronet make inquiries with regard to this matter, and does he not think, in view of the Prime Minister's statement, that it is a matter which should be taken into consideration?

Captain Brass: Is it not a fact that these men left their employment without giving any notice at all?

Captain Everard: Is the hon. Baronet aware that this firm manufactures articles which are protected under the Key Industries Act, and does he not think that people employed in such an industry ought to remain at work?

Sir P. Sassoon: In any event, the Air Ministry has no power to interfere in regard to the employment of union or non-union workpeople.

# LIGHT 'PLANE CLUB DOINGS

## London Aeroplane Club

THE flying during the week had to be restricted on account of the large number of machines in the vicinity of the Aerodrome in connection with the Royal Air Force Display. The total flying during the week was 28 hours 55 minutes.

The following members were given flying instruction:—G. M. Randall, F. S. Adams, W. E. P. Johnson, P. G. Lucas, O. J. Marstrand, J. H. Saffery, B. B. Tucker, E. A. Cook, T. C. Sharwood, E. A. Rayson, A. J. Richardson, C. L. Harrison, H. R. Godfrey, E. K. Blyth, A. E. Leeding, H. R. Presland, S. Nesbitt, G. N. Howe, O. J. Tapper, M. R. Berney, Major K. M. Beaumont, A. Southgate, P. O. A. Davison, G. Vlasto, G. W. Hall, H. R. Thomas, Miss O'Brien, J. A. Simson.

The following members made solo flights:—E. D. Moss, R. Malcolm, A. Lees, G. Walcousins, J. Barros, N. Jones, A. H. Dalton, Squadron-Leader M. E. A. Wright, Major K. M. Beaumont, Mrs. Elliott-Lynn, S. O. Bradshaw, E. S. Brough, G. H. Craig.

The flying time during the month of June broke all previous records, the total being 192 hrs. 40 mins. This was made up as follows:—

	Hrs.	Mins.
Dual instruction .. .. .	110	30
Solo flying by members .. ..	66	20
Joy rides .. .. .	7	10
Test flying .. .. .	8	40
	192	40

On Saturday, July 10, 1926, flying at Stag Lane will be suspended from 3 p.m. to 5.30 p.m. on account of the King's Cup Race and the presentation of D.H. "Moth" to the Club by the Duke of Sutherland at Hendon Aerodrome.

## The Lancashire Aero Club

REPORT ending June 28.—Machines in use: GEBLR and GEBMQ. LV is out of action until the spare engine is returned by A.D.C. The weather has been good.

Mr. Stack gave dual to:—Messrs. Leigh, 1 hr. 35 mins.; Fallon, 1 hr. 25 mins.; Dyson, 1 hr. 5 mins.; Anderson, 1 hr. 5 mins.; Costa, 1 hr.; Foxcroft, 55 mins.; Gattrell, 45 mins.; Brown, 45 mins.; Agar, 40 mins.; Hardy, 35 mins.; Goodyear, 35 mins.; Gerrard, 30 mins.; Fleming, 30 mins.; Gunton, 25 mins.; Lowe, 20 mins.; Collinson, 20 mins.; Fray, 20 mins.; Pattiaux, 20 mins.; Barnes, 15 mins.; Scott, 15 mins. Total, 7 hrs. 40 mins.

Mr. Cantrill gave dual to:—Mr. Costa, 10 mins.  
Mr. Scholes to:—Messrs. Crosswaithe, 35 mins.; Davison, 30 mins.; Leeming, 25 mins.; Williams, 20 mins. Total, 1 hr. 50 mins.

Solo flights by Messrs. Leeming, 1 hr. 25 mins.; Michelson, 1 hr. 15 mins.; Slater, 1 hr. 5 mins.; M. Lacayo, 40 mins.; Cantrill, 15 mins.; A. Goodfellow, 10 mins. Total solo, 4 hrs. 50 mins. Tests occupied 1 hr. 10 mins. Total dual, 9 hrs. 40 mins. Total hours flown in week, 15 hrs. 40 mins.

## Royal Air Force Memorial Fund

THE usual fortnightly meeting of the Grants Sub-Committee of the Fund was held at Iddesleigh House on July 1. Mr. Walter S. Field was in the chair, and the other

## British-Made Aircraft

MR. GEORGE HARVEY, on June 28, asked the Secretary of State for Air whether, in view of recent pronouncements of his intention to foster trade abroad in British-made aircraft, he can see his way to relax the secrecy Regulations operating against the enterprise of a certain aircraft firm or firms who have constructed an aeroplane or aeroplanes purely as a commercial speculation without any guarantee from the Ministry that such machine or machines will be purchased?

Major Sir Philip Sassoon: I am glad to say that it has been found possible to relax the secrecy Regulations in many ways. The whole question has been discussed with the Society of British Aircraft Constructors, who have expressed themselves as fully satisfied with the concessions which have been made.

## College of Imperial Defence

LIEUT.-COLONEL WINDSOR-CLIVE asked the Prime Minister whether he is in a position to give any information with regard to the proposed College of Imperial Defence?

Mr. Baldwin: I am able to give the following general and preliminary information in regard to the Imperial Defence College. The function of the College will be the training of a body of officers and civilian officials in the broadest aspects of Imperial strategy. The instructional staff will be drawn from the three fighting services, and the commandant will be nominated in turn by each service. The size of the College is being computed on a basis of thirty graduates per course, which includes vacancies held at the disposal of the Governments of the Dominions and India should they wish to avail themselves of its facilities. Arrangements are being made for the co-operation of the Civil Service in the work of the College. It is intended that the College shall begin in a small way, and gradually develop to its full sphere of usefulness in the light of experience gained in its working.

Mr. B. Peto: Can the Prime Minister say where this college will be situated; and in what building?

The Prime Minister: I think it will be in London. As the scheme is only being developed now, I suggest that further questions be put in the course of discussion of the Appropriation Bill.

## Bristol Cherub Aeroplane

COLONEL DAY, on June 30, asked the Secretary of State for Air if he is able to make any statement on the result of the tests and experiments carried out with the 30 h.p. Bristol Cherub aeroplane designed by Captain G. T. R. Hill?

Sir S. Hoare: The objects of this aircraft are to obtain increased stability and control down to and beyond what is known as the stalling speed. The Air Ministry considered the results of the tests sufficiently promising to justify the purchase of the existing machine and the ordering of a further improved machine of the type.

## Air Flight to Australia

LIEUT.-COMMANDER KENWORTHY, on July 1, asked the Secretary of State for Air whether any assistance is being rendered by His Majesty's Government to Mr. Cobham in his flight to Australia and back?

Sir P. Sassoon: No grant is being made, as I understand that the private assistance available will be sufficient for the purpose of the flight; but my right hon. Friend regards the object of the flight with great sympathy, and the Royal Air Force will afford any facilities which may be in their power.

On Friday Mr. Leeming made the required flights for his Certificate. Report ending July 5.—Owing to the grass remaining uncut, flying has been seriously curtailed. A strip has been cut by the Club, but with the wind any way but up and down this, taking off and landing have been out of the question. However, it is understood that Messrs. A. V. Roe, Ltd., have now given instructions to the farmer, and therefore normal flying should be resumed in the course of a day or so.

One machine in use, GEBMQ, LV and LR being out of action during engine overhaul and repair.

The Avro "Gosport" has been away having minor modifications made to it at the Newton Heath works.

Mr. Stack gave dual to:—Messrs. Costa, 1 hr. 20 mins.; Fallon, 50 mins.; Shires, 35 mins.; Leigh, 30 mins.; Locke, 30 mins.; Hardy, 25 mins.; Goodyear, 25 mins.; Parker, 25 mins.; Leeming, 20 mins.; Fray, 20 mins.; Crosswaithe, 20 mins.; Brown, 15 mins.; Coppinger, 10 mins. Total, 5 hrs. 25 mins.

Mr. Cantrill gave dual to:—Messrs. Hardy, 40 mins.; Hall, 25 mins.; Jenkinson, 20 mins.; Crabtree, 15 mins.; Mrs. Falon, 10 mins. Total, 1 hr. 50 mins.

Tests, 20 mins. Joy rides, 1 hr. 55 mins. Solo flights by Messrs. Crabtree, 30 mins.; Leeming, 30 mins.; Goodyear, 25 mins.; Wilkinson, 25 mins.; Lacayo, 10 mins.; Locke, 5 mins. Total solo, 2 hrs. 5 mins. Total time flown, 11 hrs. 35 mins.

## The Newcastle-upon-Tyne Aero Club, Ltd.

WEEK ending July 2.—All flying has, of course, been carried out by "A" pilots, and during the week 3 hrs. 20 mins. was completed by Mr. R. N. Thompson and Mr. N. S. Todd.

Mr. Thompson carried the following passengers: Mrs. Marks, Mr. W. Wingfield, Mr. F. Howard Phillips, Mr. A. H. Bell.

Mr. N. S. Todd took up the following passengers: Mr. Clark, Mr. M. G. Thirlwell, Mr. A. H. Bell, and Mr. J. Bell, who carried out some aerial photography very successfully.

The Club has engaged the services of Mr. J. W. Parkinson as instructor, who will commence his duties on June 10.

## The Southern Aero Club

REPORT for the week ending July 4.—The total flying for the week only reached 8 hrs. 10 mins., the whole of which was confined to G.E.A.L.L., G.E.A.T.U. being out of commission for change of engine and general inspection.

Our members attended the Hendon Pageant in force, so flying on Saturday being practically nil. The following members had dual instruction:—Messrs. Orford, Poole, Naunton, and Boulding. Solo flights were made by Messrs. Parker, Richardson, and Bambridge.

members of the Committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E., Squadron-Leader E. B. Beauman. The Committee considered in all seventeen cases, and made grants to the amount of £87 8s. 6d. Next meeting, July 15.



# THE ROYAL AIR FORCE

London Gazette, June 29, 1926

**General Duties Branch**

The following are granted permanent commns. in ranks stated:—Flight-Lieut. G. G. Dawson, Flying Offr. M. C. W. C. Flint, M.C.; June 1. R. P. P. Pope, D.F.C., is granted a short service commn. as Flying Offr., with effect from and with seny. of June 14. The follg. Pilot Offrs. are promoted to rank of Flying Offrs.:—S. H. Hardy, G. R. Beamish, G. W. Hayes; June 17. The follg. are transferred to Stores Branch on probation with effect from and with seny. of June 24:—Flight-Lieut. T. G. Bowler (from Squadron-Leader), Flying Offr. G. F. P. Warren (from Flight-Lieut.), Flying Offr. C. Hanson-Abbott (from Flight-Lieut.). Flying Offr. R. S. Carroll, A.F.C., is transferred to Reserve, Class A, in this rank and is granted permission to retain the rank of Flight-Lieut.; June 27.

The follg. Flying Offrs. are transferred to the Reserve, Class A:—A. D. Drvsdale, L. G. A. Kirthner, R. P. Mollard; June 28.

Pilot Offr. R. Connor resigns his short service commn.; June 30. Pilot Offr. on probation C. L. Edwards relinquishes his short service commn. on account of ill-health; June 30. Flight-Lieut. R. V. Bramwell-Davis (Lieut., R.A. relinquishes his temp. commn. on return to Army duty; June 17.

**ROYAL AIR FORCE INTELLIGENCE**

**Appointments.**—The following appointments in the Royal Air Force are notified:—

**General Duties Branch**

**Squadron Leaders:** G. H. P. Padley, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 3.6.26. J. Everidge, M.C., to No. 14 Sqdn., Palestine, instead of to No. 2 Armoured Car Company, Palestine, as previously notified, 11.6.26. A. N. Gallehawk, A.F.C., to No. 2 Armoured Car Company, Palestine, 22.3.26.

**Flight-Lieutenant** A. E. Woodbridge to No. 99 Sqdn., Bircham Newton, 12.6.26.

**Stores Branch**

**Flight Lieutenants:** D. Mitchell, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 4.6.26. H. E. T. Crocker, to Aeroplane and Armament Experimental Estab., Martlesham Heath, 11.6.26. H. V. Robbins, to Sch. of Tech. Training (Men) Manston, 23.6.26. T. G. Bowler, to Sch. of Store Accounting and Storekeeping, Kidbrooke, 24.6.26.

**Flying Officer:** B. E. Essex, to No. 1 School of Tech. Training (Apprentices), Halton, 5.7.26.

**HALF-YEARLY PROMOTIONS LIST**

The undermentioned are promoted with effect from July 1, 1926:—

**General Duties Branch**

**Group Capt. to Air Commodore.**—James Louis Forbes, O.B.E.  
**Wing Comdr. to be Group Capt.**—Henry Meyrick Cave-Browne-Cave, D.S.O., D.F.C.

**Squadron Leaders to be Wing Commanders.**—R. E. Saul, D.F.C., E. R. Manning, D.S.O., M.C., J. S. T. Bradley, O.B.E., V. S. Brown, W. B. Callaway, A. F. C. C. C. Darston.

**Flight-Lieuts. to be Squadron Leaders.**—N. S. Douglas, J. W. Woodhouse, D.S.O., M.C., E. R. Whitehouse, K. H. Riversdale-Elliott, R. B. Mansell, O.B.E., L. J. St. George Bayly, M.C., B. E. Harrison, A.F.C.

**Flying Officers to be Flight-Lieuts.**—H. C. Pyper, R. S. Greenslade, W. M. M. Hurley, N. S. Paynter, F. E. Bond, E. N. T. Edwards, W. F. Dry, R. A. Vosper, R. C. B. Brading, D.F.C., A. E. Reynolds, W. D. Gairdner, D.F.C., A. T. Laing, C. Jackson, G. L. Carter, F. E. C. Benstead, R. S. Martin, G. R. Hicks, D.F.C., A. F. James, G. H. Allison, E. J. Protheroe, J. C. Coulson, C. A. Horn, L. Darvall, M.C., H. A. L. Pattison, S. Symonds, H. J. Gemmel, S. H. Potter, R. Pyne, D.F.C., E. A. C. Britton, D.F.C., J. W. F. Merer, R. E. M. Milne, W. J. Richards, F. H. Astle, H. Norrington, E. H. Rundle.

**KING'S BIRTHDAY HONOURS**

THE List of Honours conferred on the occasion of the King's Birthday, the publication of which was postponed from June 3 to July 3, owing to the dislocation caused by the general strike, has now been issued. Amongst the Honours conferred are:—

**Knight**

Lieut.-Colonel Francis Kennedy McClean. In recognition of his services to aviation.

**Order of the Bath***C.B. (Military Division)*

Air Commodore Thomas Charles Reginald Higgins, C.M.G., R.A.F.

*C.B. (Civil Division)*

George Clarke Simpson, Esq., C.B.E., LL.D., D.Sc., F.R.S., Director of the Meteorological Office.

**Order of the British Empire***K.B.E. (Military Division)*

Air Vice-Marshal John Miles Steel, C.B., C.M.G., C.B.E., R.A.F.

*C.B.E.*

Wing Commander Frank Howard Kirby, V.C., O.B.E., D.C.M., R.A.F.

*O.B.E.*

Flight Lieut. Albert Wombwell, R.A.F.

*M.B.E.*

Flying Officer (Honorary Flight Lieut.) John Henry Amers, R.A.F.

**Stores Branch**

H. N. Davies is granted a permanent commn. as a Pilot Offr. on with effect from and with seny. of June 24.

**Medical Branch**

Flying Offr. H. W. Corner, M.B., is promoted to the rank of Flight-Lieut.; June 24.

**Reserve of Air Force Officers**

The following are granted commns. in Class A.A., General Duties Branch, as Pilot Offrs. on probation; June 14:—J. H. Simpson, R. E. Watson.

Capt. T. B. Marson, M.B.E., is granted an hony. commn. as a Wing Commdr.; June 29.

The follg. officers relinquish their commns. on completion of service:—Flying Offr. W. F. Knight, Flying Offr. F. Neale, Flying Offr. A. E. Ward; April 20. Flight-Lieut. B. A. Trechmann; May 1. Flying Offr. A. V. Blunt, May 8. Flying Offr. G. E. Muir; May 15. Flying Offr. J. W. Grose, Pilot Offr. L. J. Tripp; May 22. Flying Offr. C. E. Jessel; June 26. Flying Offr. H. J. Ellam is transferred from Class C to Class A; May 1. Flying Offr. T. J. Shaw is transferred from Class A to Class C; Nov. 29, 1925. Flying Offr. H. G. Herbert is transferred from Class B to Class C; April 23.

**Flying Officers:** G. F. P. Warren, to Sch. of Store Accounting and Storekeeping, Kidbrooke, 24.6.26. C. Hanson-Abbott, to Sch. of Store Accounting and Storekeeping, Kidbrooke, 24.6.26. P. Alderson, to No. 2 Sqdn., Manston, 23.6.26. A. M. Reidy, to No. 207 Sqdn., Eastchurch, 23.6.26. F. R. Lines, to No. 9 Sqdn., Manston, 23.6.26. O. G. Ridley, to No. 43 Sqdn., Henlow, 23.6.26. H. Seidenberg, to H.Q., Inland Area, Stanmore, 23.6.26.

**Pilot Officers:** G. L. Worthington, to No. 15 Sqdn., Martlesham Heath, 23.6.26. H. M. S. Dawes, to Sch. of Tech. Training (Men), Manston, 23.6.26. H. N. Davies, to Sch. of Store Accounting and Storekeeping, Kidbrooke, on appointment to a Permanent Commn., 24.6.26.

**Accountant Branch**

**Squadron Leader:** P. J. Wiseman, to R.A.F. Depot, Uxbridge, on transfer to Home Estab., 7.6.26.

**Flight Lieutenant:** S. G. Linssen, to No. 111 Sqdn., Duxford, 25.5.26.

**Flying Officers:** J. Freeman-Fowler, to No. 1 Flying Training Sch., Netheravon, 18.6.26. H. E. Cardwell, to No. 1 Stores Depot, Kidbrooke, 28.6.26.

**Flying Officer:** A. C. Lobley, to H.Q., Inland Area, Stanmore, 1.6.26.

**Stores Branch**

**Squadron Leader to be Wing Comdr.**—L. Auker, O.B.E.

**Flight-Lieuts. to be Squadron Leaders.**—E. D. Galloway, F. E. J. Coates, A. J. M. Ross, M.B.E.

**Flying Officers to be Flight-Lieuts.**—E. G. Keeping, E. P. Terry, W. C. Farley, H. T. H. Copeland, R. D. G. Macrostie, M.B.E.

**Stores Branch (Supplementary List)**

**Flying Officer to be Flight-Lieut.**—A. Davidson, M.C.

**Accountant Branch**

**Flying Officers to be Flight-Lieuts.**—A. J. Moore, A. C. Lobley, A. D. Stonehouse.

**Medical Branch**

**Wing Comdr. to be Group Captain.**—A. W. Iredell.

**Squadron Leaders to be Wing Commanders.**—W. A. S. Duck, O.B.E., A. E. Panter, B.A.

**Flight-Lieut. to be Hon. Squadron Leader.**—H. E. H. Tracy.

Flying Officer Charles Dollery, R.A.F.  
Flying Officer Robert Ritchie Greenlaw, R.A.F.  
Flying Officer William Henry Jinman, R.A.F.

**Civil Division***C.B.E.*

Christopher Llewellyn Bullock, Esq., O.B.E., Principal Private Secretary to the Secretary of State for Air.

*O.B.E.*

James Temple Cotton, Esq., M.B.E., Principal, Air Ministry.  
Captain Rupert John Goodman, Head of Airworthiness Section, Royal Aircraft Establishment, Air Ministry.

*M.B.E.*

Horace William Woodress Henderson, Esq., Civil Engineer, Acting Superintending Civil Engineer, Grade II, in Iraq Air Ministry.

Alfred Younger Smellie, Esq., Staff Clerk and Accounts Officer, Air Ministry.

Captain David Evan Williams, M.A., Education Officer, Grade II, Air Ministry.

**Air Force Cross**

Flight Lieut. John Stanley Chick, M.C.  
Flight Lieut. Archibald James Rankin.

**Air Force Medal**

328655 Sergeant Frederick Gilders Hammond.  
315008 Leading Aircraftman Ernest Arthur Dobbs.



## THE ROYAL TOURNAMENT, 1926

THE Royal Tournament, postponed from May owing to the industrial stoppage, was to be opened today (Thursday), by His Majesty The King.

On Wednesday a full-dress rehearsal of the entire programme was given, an audience of ten thousand boys and girls, whose annual treat this is, being present, including among the schools represented The Newport Market Army Training School, Jewish Schools, Royal Victoria Patriotic School, and Greenwich Boys.

Olympia never contains a more enthusiastic audience, and seated with them were some members of the Government, the Chiefs of the three Services and many distinguished people in the social life of London.

The Dress Rehearsal was preceded by the time-honoured Tournament Luncheon, at which the Speakers were the Rt. Hon. Sir Laming Worthington-Evans, Bt., G.B.E., M.P., Secretary of State for War; Major-General The Lord Ruthven, C.B., C.M.G., D.S.O., General Officer Commanding London District, Rt. Hon. Viscount Burnham.

A splendid programme was provided for the children and included:—Combined Display of All Arms; "A Frontier Fight"; a Display in Drill by the Brigade of Guards; Royal Naval Inter-port Field Gun Competition; Musical Drive by "O" Battery, Royal Horse Artillery; Musical Ride by 10th Royal Hussars; Riding and Driving Display by Royal Army Service Corps; Mounted Display by the Staff of the Equitation School; Trick Riding and Fancy Tent Pegging Display by 17th/21st Lancers; a Display by Students from the Army School of Physical Training; Display of Gymnastics by the Army Physical Training Staff; and, last but not least, a wonderful Display of Physical Training by the Royal Air Force.

The Tournament continues twice daily, at 2.30 and 8 p.m., until July 24.

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## British Standard Tables of Brinell Hardness Numbers

STANDARD tables of Brinell hardness numbers have been prepared and issued by the British Engineering Standards Association as B.E.S.A. Publication No. 240—1926. The tables are accompanied by recommendations in regard to the accuracy of the apparatus to be used for the test, the preparation of the test specimens, the magnitude and application of the load, and the method of specifying the hardness. It is hoped in a later edition to include a specification for the hardness of steel balls used for Brinell testing. Copies of this new publication may be obtained from the B.E.S.A. Publications Department, 28, Victoria Street, London, S.W. 1, price 1s. 2d. post free.

## Air Council's Award to Steam Trawler's Crew

THE Air Ministry announces:—The Air Council have awarded a piece of plate to M. Jean Baptiste Germe, skipper of the steam trawler *Louise Marguerite*, of Boulogne, and a sum of money to three members of the crew, in recognition of their services in effecting the rescue of the three British officers of the seaplane Fairey IIID, No. 9570, which came down on the open sea in the English Channel on February 18, 1926. The Board of Trade have been requested by the Air Ministry to present these awards.

## Fine Flight by Fokker "Jupiter"

ON May 28 last a notable non-stop flight between Rotterdam and Marseilles, a distance of 1,020 kms. (632.5 miles), was made by the K.L.M. air liner H-NADJ fitted with a Bristol "Jupiter" engine. The machine started from Waalhaven Aerodrome early in the morning against a strong head-wind. At Rheims the course was altered to a south-easterly direction, with the wind at the side, but the later stages of the flight were completed with the aid of a following wind. The revolutions per minute of the Jupiter engine were maintained at 1,550, and the total distance was covered in 6 hrs. 35 mins., at an average speed of 155 k.p.h. (96 m.p.h.). Petrol consumed during the flight averaged 102 litres/hr. (24.8 galls./hr.), flying being carried out at altitudes varying from 1,200 and 1,500 metres. On the same day the machine was flown back to Dijon, and, owing to the fact that very heavy rain-storms were encountered, it was decided to stay there for the night. The next morning, however, the machine proceeded to Paris to take up a load of passengers and merchandise and flew back to its base at Amsterdam. The total flight from Rotterdam to Marseilles and back occupied 16½ hours actual flying time (including the 6½ hours' non-stop flight on the outward journey), and during the whole period, the K.L.M. Co. report, "the engine ran remarkably well without any fault." The machine used was one of

the standard F.VIIa type fitted with the "Jupiter" engine which the K.L.M. Co. have now adopted as standard for service on their air lines. Owing largely to the light weight of the "Jupiter" engine, this machine carries a considerably higher revenue-paying load per horse-power than any other commercial aircraft at present in use, and notably successful results are being achieved.

## Sunbeam Photos for Edinburgh Museum

A SERIES of framed photographs of representative types of Sunbeam Coatalen aero engines has been presented by the Sunbeam Motor Car Co., Ltd., to the technical department of the Royal Scottish Museum, Edinburgh, and added to the permanent collection.

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## PUBLICATIONS RECEIVED

*The Air Pilot Monthly Supplement*. No. 20. June, 1926. Air Ministry, Kingsway, London, W.C.2.

*The Movement of Moisture with Reference to Timber Seasoning. Forest Products Research, Technical Paper No. 1*. H.M. Stationery Office, Kingsway, London, W.C.2. Price 1s. 6d. net.

*Revue Juris de l'Internationale de la Locomotion Aerienne*. April, May, June, 1926. Per Orbem, 4, Rue Tronchet, Paris.

*The Gloster*. Vol. 2, No. 1, May-June, 1926. Gloucestershire Aircraft Co., Ltd., Sunningend Works, Cheltenham.

*Rolls-Royce Bulletin*; February and May, 1926. Rolls-Royce, Ltd., 14-15, Conduit Street, London, W.1.

*A Short Course in Elementary Meteorology*. By W. H. Pick, B.Sc. (Second edition, revised.) Meteorological Office, M.O. 247. H.M. Stationery Office, Kingsway, London, W.C.2. Price 1s. 6d. net. Post free 1s. 8½d.

*Earl Haig's British Legion Appeal Fund: Poppy Day Report, 1925*. British Legion Appeals Department, 26, Eccleston Square, London, S.W.1.

*Australian Aerial Services Time Table*. Larkin Aircraft Supply Co., Ltd., 528-530, Collins Street, Melbourne, Australia.

## Catalogue

*Thermometers for Aircraft*. Negretti and Zambra, 38, Holborn Viaduct, London, E.C.1.

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## AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

## APPLIED FOR IN 1925

Published July 8, 1926

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| 3,956.  | H. LEITNER.  | Aircrews. (253,169.)   |
| 7,687.  | M. A. MAZADE.  | Aircraft stabiliser. (231,482.)  |
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| 8,069.  | H. F. PARKER.  | Method of recovering water from exhaust gases of aircraft motors. (253,248.) |
| 12,207. | SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT, LTD., and F. M. GREEN. | Aircraft wings. (253,331.)   |
| 12,457. | L. AVORIO.   | Kite balloon adapted to be transformed into a dirigible. (253,337.)          |
| 15,419. | R. MICHL.  | Synchronous motors. (235,599.)   |
| 7,176.  | H. HECKER.   | Method for connecting frames of flying machines, etc. (253,411.)             |

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